

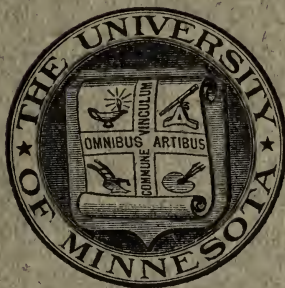
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1912/13

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The University of Minnesota

THE SCHOOL OF AGRICULTURE

1912-1913



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1913

BULLETIN OF THE UNIVERSITY OF MINNESOTA
VOL. XV, NO. 6. JUNE 1912

Entered at the Post Office
in Minneapolis as second-class matter
MINNEAPOLIS, MINN.

The University of Minnesota

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The University catalogues are published by authority of the Board of Regents, as a regular series of bulletins. One bulletin for each college and one for the Summer Session is published every year and in addition a bulletin of general information outlining the entrance requirements of all colleges of the University, and embodying such items as University equipment, organizations and publications, expenses of students, loan and trust funds, scholarships, prizes, etc. Bulletins will be sent gratuitously, postage paid, to all persons who apply for them. In calling for bulletins, the college or school of the University concerning which information is desired should be stated. Address,

THE REGISTRAR,

The University of Minnesota,

Minneapolis, Minnesota

1912							1913													
JULY							JANUARY							JULY						
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14	15	16	17	18	19	20	12	13	14	15	16	17	18	13	14	15	16	17	18	19
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THE UNIVERSITY OF MINNESOTA comprises the following named schools, colleges, and departments:

THE COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

THE COLLEGE OF ENGINEERING AND THE MECHANIC ARTS

THE DEPARTMENT OF AGRICULTURE, including—

THE COLLEGE OF AGRICULTURE

THE COLLEGE OF FORESTRY, including—

FOREST EXPERIMENT STATIONS AT ITASCA AND CLOQUET

THE SCHOOL OF AGRICULTURE, including—

THE DAIRY SCHOOL

THE SHORT COURSE FOR FARMERS

TEACHERS' SUMMER TRAINING SCHOOL

THE SCHOOL OF TRACTION ENGINEERING

THE SCHOOL OF AGRICULTURE, CROOKSTON

THE SCHOOL OF AGRICULTURE, MORRIS

THE EXPERIMENT STATIONS, including—

THE MAIN STATION AT ST. ANTHONY PARK

THE SUB-STATION AT CROOKSTON

THE SUB-STATION AT GRAND RAPIDS

THE SUB-STATION AT DULUTH

THE SUB-STATION AT WASECA

THE SUB-STATION AT ZUMBRA HEIGHTS

AGRICULTURAL EXTENSION

BUREAU OF RESEARCH IN AGRICULTURAL ECONOMICS

THE LAW SCHOOL

THE COLLEGE OF MEDICINE AND SURGERY, including—

THE SCHOOL FOR NURSES

THE COLLEGE OF DENTISTRY

THE COLLEGE OF PHARMACY

THE SCHOOL OF MINES, including—

MINNESOTA SCHOOL OF MINES EXPERIMENT STATION

THE SCHOOL OF ANALYTICAL AND APPLIED CHEMISTRY

THE COLLEGE OF EDUCATION

THE GRADUATE SCHOOL

THE GEOLOGICAL AND NATURAL HISTORY SURVEY

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SCHOOL OF AGRICULTURE

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ALFRED R. KOHLER, B.S.A., Assistant in Horticulture
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WIELAND L. OSWALD, Assistant in Agricultural Botany
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JOHN P. WENTLING, M.A., Assistant in Forestry
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2132 Carter Ave., St. Paul
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914 2nd Ave. S., Minneapolis
- MARY L. COFFIN, Music 2914 Portland Ave., Minneapolis
- DELILAH L. PEARCE, Home Nursing University Farm, St. Paul
- INGA PEDERSON, Assistant in Library 2120 Carter Ave., St. Paul
- RUTH TAYLOR, Assistant in Library 1325 5th St. S. E., Minneapolis

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- Demonstration and Exhibit.*—C. P. BULL, WILSON, FRAZIER, BLAIR, SHEP-
PERD, R. M. WASHBURN

GENERAL INFORMATION

LOCATION

The School of Agriculture is located on University Farm, St. Paul, Minnesota, about midway between the business portions of the cities of St. Paul and Minneapolis. The School of Agriculture is a part of the University of Minnesota, and is governed by the University Board of Regents.

How to Get to the School

Check all baggage to Minneapolis or St. Paul, and bring checks to the School.

A charge of 25 cents is made by the school teams for transporting trunks at the opening of the School. No charge is made for the return of the baggage at the close of school, provided it is ready to go on the days assigned.

Monday and Tuesday, October 7th and 8th, members of the Y. M. C. A., wearing lettered badges will be at the Union Station in St. Paul, and at the Union, Milwaukee, Soo, and St. Louis Stations in Minneapolis to meet and direct new students. Take the Como-Harriet or Como-Hopkins car from either St. Paul or Minneapolis, and get off at Commonwealth Avenue.

TIME OF OPENING

The School of Agriculture will open Monday, October 7, 1912, and close March 26, 1913. The fall term will close at 4:30 p. m., Friday, December 20th, and the winter term will begin Tuesday, January 7, 1913.

All cadets of the B class and all of the A class who elect drill for next year will report to the Commandant of cadets at Fort Snelling on Thursday, October 3rd, at 10 o'clock a. m., and remain there until Tuesday morning, October 8th, when they will return to the School to take up the regular school work.

Instruction begins promptly at the opening of each term, and students should be present the first day and remain until the close of the term.

PURPOSE

The School of Agriculture was organized in 1888, with the object of giving a practical education to young men and women. It offers a practical course of study designed to fit young men and young women

for successful farm life, and aims to give to its students the necessary preparation for useful citizenship; but does not aim to prepare students for college.

ADMISSION

Students should correspond with the Registrar of the School, J. M. Drew, University Farm, St. Paul, Minnesota, prior to coming to the institution, to make the necessary preliminary arrangements for registration.

All male students are required to have had six months' farm practice before entrance. No student under seventeen years of age will be admitted.

Students who have completed eighth grade work or its equivalent in the common schools, and who are seventeen years of age or older, are admitted without examination. All applicants for admission should send to the Registrar for certificates of admission which, when properly filled out by former teachers or superintendents, will be accepted in place of entrance examinations. Diplomas should not be sent.

Applicants whose home schools do not afford complete instruction in the common branches may be admitted with not more than two conditions which must be removed according to instructions given the student upon admission.

Students from city or grade schools will not be admitted before finishing eighth grade work, nor until their former school records have been passed upon by the Registrar. These records must be presented at least three weeks prior to the opening of the school.

State High School Board certificates are accepted for work in English, Physiology, Algebra, Geometry, and Civics, or credits of 75 per cent. or more received on State teacher's examinations.

Students who have finished agricultural subjects in the high schools of the State, or other schools under the Putnam or Benson-Lee acts may receive full credit for such subjects as are pursued an equivalent length of time, with proper facilities for instruction. Students are advised to review, while here, such subjects as the enlarged facilities of this School render advantageous.

COURSE OF STUDY

The course of study offered covers a wide range of subjects, and is largely technical in character; but provision is made for some instruction in English and Mathematics. The course is briefly outlined on pages 21 and 22. Instruction is given in the work shop, laboratories, barns, and fields, as well as in the classroom. The course requires three winters of six months each for completion, and is co-educational. Much of the work is taken in common by the young men and the young women. Some of the subjects, such as blacksmithing, carpentry, field work, handling grain and machinery, are taken by the young men, while the young women pursue cooking, sewing, laundering, and household art. The methods of

instruction tend to educate students toward the farm instead of away from it and to develop in them a love for farm life by showing them its possibilities. In this respect the school has been very successful, as over 80 per cent. of its graduates continue agricultural pursuits.

CLASSIFICATION OF STUDENTS

The Students' Work Committee shall report to the Faculty at the end of the first term, the names of all candidates for graduation, and no student shall be considered a senior whose name does not appear on the list furnished by the Students' Work Committee.

No student with incomplete preparatory work, or more than one incomplete C subject, excepting high school graduates, will be classified as a B.

No student with incomplete C or preparatory work will be made a commissioned military officer.

REQUIREMENTS FOR GRADUATION

First.—The completion of the prescribed course of study, with an honorable standing in department.

Second.—An essay of not less than one thousand words, upon a topic connected with Agriculture or Home Economics, typewritten on paper of approved size for binding and filing in the library.

Third.—For young men, a practical experience in field work at the University Farm or elsewhere, as shall appear in reports received from responsible sources.

Young women will be required to spend their vacations in practical work in the home under the supervision of the Sections of Domestic Science and Domestic Art.

It is essential that the student should do some work of a practical nature during the vacations following the first and second school years respectively. Students will be given a credit for this work just the same as for other school work. Blanks giving an outline of the work in detail, and blanks for certification are furnished to all students.

It is expected that all the boys in the School will devote their vacations to actual farm work, or to some form of agricultural work, and the girls to some line or lines of work, such as making bread for the family, canning fruits, vegetables, etc.

EXPENSES

The necessary expenses for the year do not exceed \$100. This amount does not include the cost of the required military suit for the young men, traveling and personal expense.

Residents of Minnesota are charged an entrance fee of \$5 per school year; non-residents of the state, \$10.

The cost to the student for board, heat, light, and laundry is the actual cost of maintaining the table (including management), and caring for the buildings. This has not exceeded \$3 per week. Each term's board is paid in advance. The buildings are all lighted by electric lights and warmed by steam. The sleeping rooms are each furnished with a bedstead, mattress, dressing bureau, chairs and table.

No deduction in charge is made for any absence of less than five days. If students are compelled to be absent for that length of time, they are allowed half rates, if they make arrangements before leaving.

Text-books are furnished at a rental of \$2.50 per year through the Students' Co-operative Store to students who do not desire to purchase. A gymnasium fee of 25 cents is charged each student.

The average cost to students of the first year for drawing instruments and material, note books, and all necessary stationery and supplies is between \$12 and \$15. For students in the second and third years the cost is slightly less.

Each student is required to pay for breakage of apparatus used in practical work.

A competent nurse is kept on the ground to care for the sick. To meet this expense each student pays \$1 per term.

For the purpose of supplying, calcimining, and painting the sleeping rooms, a reserve fund is created by assessing each one occupying them \$2.00 for the school year.

A deposit of \$5 is required of each student as a guaranty for the return of all books and other articles borrowed. This deposit is not returned until the student severs his connection with the school.

On entering the school the student, if he is a resident of Minnesota and is to room and board at the institution, makes a payment of \$5 entrance fee; \$30 board; \$1.25 book rent; 25 cents gymnasium fee; \$1 maintaining nurse; \$2 reserve fund; \$5 deposit; total \$44.50.

All male students are required to provide themselves with the prescribed uniform, which consists of cadet gray blouse, trousers, and cap, and is as neat and economical a dress as the student can obtain. The suit complete, to measure, is furnished under special contract for \$15.50.

Each girl is required to provide herself with at least two large white aprons with bibs and two pairs of half over-sleeves to wear while at work in the Domestic Science laboratory.

Each student provides four sheets, one pair of blankets, one quilt, one bed spread, one pillow, three pillow cases, towels, napkins, comb and brushes, one glass tumbler, and one teaspoon.

Students who do not room in the dormitories will be required to rent a post-office box in the Main Building in order that notices, etc., may reach them promptly.

Each student in attendance at the School who expects to return the following year and who desires to room in the dormitory will, before going home, make a deposit of \$2 with the Cashier as evidence of good faith that he expects to return on the opening day of the following school year. Dormitory rooms will be assigned to new students in the order in which

their applications are received. Each prospective student who desires to room in the dormitory will be required to send a deposit of \$2, which will be returned in case the application is received after all dormitory rooms are spoken for.

In the case of either a former student or a prospective student, this two dollar deposit will be forfeited if the student does not appear for registration on the opening day of the school year, unless he has signified in writing to the Registrar at least ten days before the opening that he does not intend to return. All money orders or checks should be made payable to Harriet Matthews, Cashier.

HOSPITAL FUND

The Hospital Fund will be expended under the general direction of the Health Committee.

This fund insures, for those contributing to it, the care of regular nurses and such medicines and materials as the regular nurses may use.

It does not provide medical treatment by physician.

It does not provide hospital expenses of students rooming off the campus or away from the institution. Students rooming off the campus are not expected to contribute to this fund. They may, if they so desire, purchase hospital service cards for one dollar per term which will entitle them to office consultation and treatment by the nurse and, if they live within reasonable distance from the grounds, may have the privilege of nurse calls at fifty cents per call, when nurses can be spared from regular duties on the grounds.

It does not provide for special nurses, if such be required by reason of serious or long continued illness, except as provided for in the following rule:

Rule

Adopted by the Health Committee, March 9, 1909.

"After usual and necessary running expenses connected with the Hospital Fund have been taken care of, any available balance may be used for paying special nurses or other extraordinary expenses. Any balance still due such special nurses shall be paid by students requiring such extra help and pro-rated according to the number of days attendance for each.

"A dispensary fee of \$.25 for each office service by nurses will be collected from those who have not contributed to the hospital fund.

"The regular hospital fee is collected from dining-room help the same as from students, and this help is then entitled to nurse-care on the same basis as students."

STUDENTS' TRUST FUND

The class of 1902 left with the School a fund of \$100 "to assist by temporary loans, at a reasonable rate of interest, deserving students needing such help, who are not below the B class in the School of Agri-

culture." This fund is in charge of a committee consisting of the Dean, the Principal, the Preceptress, and the President of the A class.

THE LUDDEN TRUST

The late Honorable John D. Ludden, of St. Paul, gave the University of Minnesota \$5,000, to be held, invested and re-invested by the University through its Board of Regents, and the income thereof to be collected, received, and applied by said Board of Regents to the financial assistance of students of either sex in the School of Agriculture. Mr. Ludden delivered into the hands of the Regents, for the principal sum, one Northern Pacific registered prior lien railway land-grant gold bond of the denomination of \$5,000, payable to the University of Minnesota and its assigns in gold coin, on the first day of January, 1997, with interest at 4 per cent per annum, payable quarter-yearly in like gold coin, the fund to remain so invested until the bond matures, unless by reason of changed conditions a reinvestment shall be sooner deemed judicious by the Board of Regents for the safety, conservation, or continued productiveness of the fund. The premium on the purchase of this first grade security was \$212.50, and was paid by Mr. Ludden, thus enlarging his donation by that amount.

Mr. Ludden afterward donated an additional sum of \$5,000 for a like purpose, so that the yearly income is now \$400.

Mr. Ludden imposed the following conditions: "The beneficiaries must be youths who are residents of the state of Minnesota; they must be and continue of unblemished moral character, and of temperate and industrious habits; and they must be such as by examination and trial shall evince and maintain a taste, habit, and aptitude for study and improvement; and any student who shall fail to come, or shall cease to be, within the above conditions shall forfeit all claims to the benefit of such fund. Subject to these conditions the administration of such income is entrusted to the said board of regents, which may make such rules therefor as they may deem judicious."

This fund produces \$400 a year. Those wishing to avail themselves of its benefits should apply to the Executive Committee of the Board of Regents of the University of Minnesota.

ASSEMBLY

On each school day, at 11:40 a. m., excepting Monday and Wednesday, the students assemble in the chapel. After the opening exercises, brief talks are given by the Principal, members of the Faculty, or invited guests.

During the year the list of speakers will include prominent state and national officials, business men, particularly those connected with the agricultural industries, professional men, prominent clergymen of all denominations, educators from other institutions, and successful farmers.

It has been found that this plan gives to the students an opportunity to hear men of prominence discuss a wide range of topics, many of which relate to rural and agricultural problems.

HOLIDAYS

On Thanksgiving Day no classes will be held, but school will continue as usual on the Friday and Saturday following.

Lincoln's birthday, February 12th, and Washington's birthday, February 22d, will be observed by appropriate exercises.

HOME LIFE ON THE CAMPUS

The life of the students while attending the School of Agriculture is subject to supervision. The home life of each student is carefully guarded, and everything done to promote a healthful and moral atmosphere. The use of tobacco and spirituous liquors of all kinds is strictly forbidden. No person will be admitted as a student who is known to have the cigarette habit.

Any one not in accord with these restrictions and not willing to lend a hand toward a strong moral growth, should not come to the School of Agriculture.

STUDENTS IN DORMITORIES

The Principal of the School of Agriculture has charge of the boys in their dormitory and social life, and the Preceptress has charge of the girls in their dormitories and social life, under such regulations as may be approved by the Dean.

From 8:00 a. m. to 4:30 p. m. and also after 7 p. m., students not at recitation or chapel are expected to be in their rooms or in the library studying or reading.

The rooms shall at all times be quiet, especially in the evening, so no student may be disturbed.

The cadet officers shall make daily inspection of the boys' dormitories, under proper supervision of the instructors.

LECTURE COURSE

During the school year, a lecture and entertainment course, usually consisting of six lectures and concerts, is given in the chapel. These entertainments are strictly high grade, and furnish a pleasant relaxation from school work, as well as mental stimulus.

The following program, which was provided during the past year, shows the general character of the entertainments.

October 25th	Music	The Tyroleans
November 15th	Lecture	Caleb Powers
November 28th	Magician	Edwin Brush

December 16th	Entertainer	Emerson Winters
January 29th	Music	John Eberly Concert Company
March 2nd	Lecture	Sylvester A. Long

ORGANIZATIONS AND PUBLICATIONS

Students' Debating Societies

Students are urged to unite with one of the ten literary societies of the School for both pleasure and profit. The work is under the supervision of one of the instructors in the English Department. It affords training in parliamentary practice, public speaking, debating, and dramatic work.

All student organizations making use of any of the college buildings must file a statement with the Registrar, giving names of president, secretary, and treasurer, and all organizations collecting fees must deposit the fees with the department Cashier and turn in their books at least once a term to be audited by the department auditing committee to whose rules all such organizations must conform. Before any new student organization is formed, permission must be obtained from the chairman of the Entertainment Committee.

Students' Christian Associations

The Young Men's and the Young Women's Christian Associations have for their objects social fellowship and moral and spiritual development. To this end, two receptions are held each year, and Bible classes are held Sunday mornings at 8:30. A general religious service is held each Sunday at 5:30 p. m., and a mid-week prayer-meeting each Thursday at 6:30 p. m. The associations are non-sectarian, so that all students may find in them an opportunity for Christian activity and mutual helpfulness.

Farmers' Clubs

Farmers' Clubs, as now organized in Minnesota, are local organizations of farmers. Each club usually represents a small territory, as a rural school district or township. The Agricultural Extension Division aids in organizing these clubs, and in helping them to continue effectively. Extension Bulletin No. 1 describes the work of these clubs and the methods of organization. Speakers are sent from the Extension Division and Institute force as often as practicable to help with the local program. A list of timely topics is sent by the Division to each club each month, and also blanks on which the clubs may report. At least 150 such clubs are organized in the State, and many more are needed. Students of the School of Agriculture can be very helpful in this work, by acting as leaders in their local communities.

The Minnesota Farm Review

The Minnesota Farm Review is a monthly agricultural paper owned and published by the Alumni Association of the School of Agriculture. The paper is intended to be a medium by which the former students of

this institution shall be kept in touch with each other, and also with the School and Experiment Station. It also endeavors to bring the farmers of the State into closer connection with the institution, and to this end it strives to present the latest progress in experimental work at the various stations. It is the official organ of the Alumni Association and of the Farmers' Club.

The University Farm Press News

One of the instruments used by the Extension Division for the purpose of keeping the public informed of the work done at the Department of Agriculture of the University of Minnesota, as well as of keeping the public posted on new developments in agriculture, is a small sheet of information published semi-monthly, known as the *University Farm Press News*. This sheet is mailed to all of the papers in the State.

The Minnesota Farm Library

The Extension Division of the Department of Agriculture will publish monthly a small popular bulletin, under the caption, *Minnesota Farm Library*. Each one of these bulletins will deal, in a popular and interesting way, with some phase of farm life. Most of them will be extracts from technical bulletins published by the Minnesota Experiment Station or other agricultural institutions. The attempt will be to present the technical matter from these publications in a more simple and interesting manner than is done in the ordinary station bulletin. The Minnesota Farm Library will be mailed free, monthly, to any citizen in Minnesota so desiring.

LIBRARY

The Agricultural Library is well equipped for supplying the needs of both undergraduate and graduate students. It contains nearly 19,000 volumes of general and technical literature, government reports, etc., besides 50,000 unbound pamphlets, bulletins, and reports. The general subject and author card index, and the index of publications of the state experiment stations are always at the disposal of all students, to aid them in locating the various sources of information which the library affords.

There are complete sets of all the standard encyclopedias and dictionaries, and files of over 225 popular and technical magazines and periodicals.

The librarian and her assistants are always ready and glad to give whatever assistance they can, both to those interested in special research work and to those doing regular reference work in connection with their classes. All those wishing to read or study are made welcome, and are given whatever privileges the library can provide.

ZOOLOGICAL MUSEUM

This is in the third story of the Main Building and connecting with the entomology lecture room. It contains one of the finest collections of birds in the Northwest, a large series of mammals, shells, anatomical models, etc., all used in class instruction. One case is given up to models of injurious insects and a collection of spray pumps, nozzles, etc., showing the various makes on the market. Another case is devoted to a beautiful series of Minnesota fishes, reptiles, and amphibians, and on two sides of the large room devoted to museum purposes are cases containing thousands of pinned insects. Friends of the institution who are inclined to donate zoological specimens may rest assured that they will be properly installed and given the best of care.

MINNESOTA FARMERS' INSTITUTES

Farmers' Institutes in Minnesota are under the direction of a Board, composed of three members of the Board of Regents, and the Presidents of the State Dairymen's Association, Minnesota Horticultural Society, and Minnesota Agricultural Society. The direct supervision of Institute work is given to a Superintendent, chosen by this Board, who has his offices at the School of Agriculture.

Institutes are held in rural schools, town halls, and in cities and villages wherever sufficient interest is shown to warrant. For information regarding Institutes, and to secure dates, address the Secretary of the Farmers' Institutes, University Farm, St. Paul.

OTHER SCHOOLS OF AGRICULTURE IN THE STATE

School of Agriculture at Crookston

The School of Agriculture at Crookston, Minnesota, established by the Legislature of 1905, is in active operation and offers to the young men and young women of the Red River Valley a three years' course in practical farming and home-making. The school year for 1912-13 will open October 1, 1912 and close March 28, 1913. For further information address School of Agriculture, Crookston, Minnesota.

School of Agriculture at Morris

The 1909 session of the Minnesota Legislature accepted from the National Government the gift of the Morris Indian School and appropriated funds for its maintenance as an agricultural school. The control of the institution was placed in the hands of the Board of Regents of the University of Minnesota. The school opened October 3, 1910, with a large enrollment totalling 104 for the year. The courses of instruction are made to conform as closely as possible with those of the school at St. Anthony Park. During the summer arrangements will be completed for considerable enlargement of facilities, making it possible to accommodate more students and offer better instruction. The 1912-13 term will open September 30, 1912 and close March 19, 1913.

COURSE OF STUDY

Figures in brackets indicate the number of periods per week in which the subject pursued.

FIRST (C) YEAR

First Term

Agricultural Botany [4]

Music [2]

Farm Mathematics [5]

English [5]

or

Physiology [5]

*Drawing [2]
*Blacksmithing [2]
*Carpentry [2]
Military Drill [3]
Agronomy [5]
Gymnasium [2]
†*Practicums [2]

or

*Cooking [2]
Physical Training [2]
*Sewing [2]
Social Training [1]
Field Agriculture [3]
*Home Nursing [2]

Second Term

Agricultural Botany [4]

English [5]

or

Comparative Physiology [5]

Study of Breeds [5]

Music [2]

*Carpentry [2]
*Drawing (farm buildings) [2]
*Blacksmithing [2]
Military Drill [3]
Gymnasium [2]
*Practicums [2]

or

*Laundering [2]
*Sewing [2]
Physical Training [2]
*Farm Accounts [2]

SECOND (B) YEAR

First Term

English [2]

Agricultural Physics [5]

Elementary Chemistry [7]

*Dairy Husbandry [2½] { Dairy Lectures
Dairy Practice
Dairy Breeds

Fruit Growing [3]

Music [2] (optional)

*Farm Accounts [4]
*Stock Judging [2]
Breeding [2]
Military Drill [3]
Gymnasium [1]

or

*Farm Accounts [2]
*Cooking [2]
Household Art [1]
Physical Training [2]
*Sewing [2]

Second Term

English [2]

Agricultural Chemistry [5]

*Dairy Husbandry [2½] { Dairy Stock Lectures
Dairy Practice
Dairy Feeding

†See page 26

*Subject extends through double time in the daily program.

	Music [2] optional	
	Agricultural Physics [5]	
	Vegetable Gardening [3]	
Farm Management [5]	}	*Meats [1]
*Dressing and Curing Meats [1]		*Cooking [2]
Military Drill [2]		Home Management [1]
Gymnasium [1]		Physical Training [2]
	or	*Sewing [2]

THIRD (A) YEAR

First Term

Forestry [3]

Zoology [3]

Poultry [3]

‡Algebra [5]

Chorus [1] optional

Soils and Fertilizers [5]	}	
*Farm Implements [1]		*Cooking [3]
*Veterinary Science [2½]		*Sewing [2]
Gymnasium [1]		Music [2]
Music or Military Drill [2]		
	or	

Second Term

Civics [4]

English [4]

Plant Propagation [3]

Entomology and Insect Collection [3]

‡Algebra [5]

Chorus [1] optional

Dairy Chemistry [2]

*Farm Implements [1]	}	
*Grain Judging [1]		Home Economy [1]
*Stock Judging [1]		*Cooking [3]
Feeding [3]		Domestic Chemistry [3]
*Veterinary Science [2½]		*Sewing [3]
*Dairy Stock Judging [1]		Domestic Hygiene [1]
	or	

*Subject extends through double time in the daily program.

‡Required of those expecting to enter the College of Agriculture.

DEPARTMENTAL STATEMENTS

AGRICULTURAL BOTANY

This course consists principally of a study of the flowering plants. The practical side of the subject is emphasized by the study of the plants usually found on the farm. Some work is done in the greenhouse, which enables the students to see more clearly the functions and different parts of the plant. This course includes a botanical study of weeds found on the farm, and the botanical features concerned in methods of eradication. Determination of weed seeds found in grain and grass mixtures is also a part of this course. Plant diseases, such as rusts, smuts, potato diseases, etc., are studied and the best preventive methods are discussed. Some instruction is given in the use of the compound microscope.

AGRICULTURAL CHEMISTRY

In Agricultural Chemistry, one term is given to a study of the elements and compounds which are of the most importance in agriculture. This work is planned to prepare the student for intelligent study of the chemistry of foods, soils, and fertilizers, and at the same time to familiarize him with the more important chemical changes which take place in everyday life. Laboratory practice forms a prominent feature of the work. In the chemistry of foods, the composition of plant and animal bodies, the chemistry of plant growth, the chemistry of animal nutrition, the digestibility and value of foods, and the laws governing the economic uses of foods, are some of the subjects considered. The composition and the utilization of farm crops for food purposes and the application of the principles of chemistry to plant and animal life form the basis of this work.

AGRICULTURAL PHYSICS

In this department it is the aim to enlist the student's interest in a more keen appreciation of the principles that underlie the practices of his vocation. To this end, the facts with which he is already somewhat familiar are used to reach the fundamental law. For example, from his knowledge of the relation of weight to bulk in grains, soils, and water, he is led to a knowledge of volume, mass, density, weight, force, draft, specific gravity, and fluid pressure. So far as possible the work is carried on by experimental demonstrations before the class. Likewise, the somewhat vague and indefinite notions the young people have from their use of pulleys, eveners, and other farm machinery form fitting stepping-stones to definite mathematical results, readily reached by them under proper guidance.

The varied questions of soil physics, soil formation, the movements of water and air through soil, soil temperatures, soil grains and granules, and pore space are matters studied from the practical side and used as avenues to far-reaching laws.

AGRONOMY

A general consideration is given of soil formation; soil moisture and its control; the principles and effects of tillage and rotation of crops; farm crops, including history; uses, selection, storing, and testing of seeds; preparation of seed-bed and planting; cultivation; harvesting; meadows and pastures; methods in plant improvement; practice in judging grains and corn.

ELEMENTARY ALGEBRA

Beginning Algebra is offered throughout the senior year, required of all students intending to enter college, and optional for others. This work covers Wells' New Higher Algebra, or equivalent texts, through simple equations of one unknown quantity. Special attention is given to literal notation, negative numbers, factoring, fractions, and the simple equation.

BLACKSMITHING

The students are instructed in the management of the forge and fire, and in bending, shaping, and welding iron and steel. They are required to make links, rings, hooks, bolts, clevises, tongs, cold-chisels, punches; in short, become familiar with all the operations necessary to enable them to do their own repair work when they return to the farm. Particular attention is given to rapid and accurate welding and to the shaping and tempering of steel tools. The forges used are such as any farmer can make for himself, and each student is taught to make his own tools, so that he will be able to furnish his shop with very little outlay.

BREEDING

Students receive instruction in the principles that govern breeding, on the influences that affect heredity, and in the care and management of breeding stock. Pedigree receives careful consideration, and each student is required to make out pedigrees of two or more pure-bred animals. They are also required to become familiar with methods of keeping live stock records of all kinds.

CARPENTRY

Instruction is given by means of lectures on the care and use of the common carpenter tools, such as should be found on every farm; also in methods of farm building construction,—framing, laying out rafters,

stairways, estimating building material, painting, etc. In the carpenter shop, students are required to make such exercises as will give them some practice in using carpenter tools. They are required to make mortise-joints, splices, drawing-boards, hammer-handles, eveners, cup-boards, etc.

Each student is required to file his own saws, sharpen his planes, chisels, etc.

CIVICS

During the last term of the course, students receive instruction in this science and graduate with a good understanding of the origin, necessity, nature, and various forms of government, and of the machinery employed to carry on public works, establish justice, and provide for the common defense; of the organization and management of local institutions, the town, the village, the city, and the county; the manner in which states are created and affairs administered; the three departments, legislative, judicial, and executive, and the functions of each; the interdependence of the state and its citizens, as well as the powers and obligations of each, by due attention to which the state may be strengthened and the condition of its citizens ameliorated.

The relations of the state to the general government, the constitution and the power it confers, and the provisions for amendments are taught. The more important principles of commercial law, including contracts, agency, partnership, corporations, and commercial paper, receive attention. Instruction is also given in the United States method of surveying public lands.

COMPARATIVE PHYSIOLOGY

During the first year, students take one term of applied physiology. This is an effort to connect technical physiology with the necessities of every-day life. The work includes a study of the general plan and structure of the body and the various individual tissues of which it is composed; also of the sources of heat and energy, digestion, and the relation of food materials to the various tissues of the body. Considerable attention is given to diseased and innutritious foods, food adulteration, and narcotics. The circulation is studied with special reference to the relation of the blood and lymph to tissue nutrition and tissue waste.

Accidents, including poisoning, are studied for the purpose of giving a practical knowledge of what to do in emergencies. Considerable attention is given to the subject of clothing, the various materials in use being considered with reference to fitness for special purposes. Some time is also given to the study of common physiology, of the organs of circulation, digestion, respiration, the nervous system, and the relations of bacteria to the common diseases, especially such diseases as consumption, typhoid fever, etc. A brief study is also given to the subject of digestion in the lower animals.

The class-work is illustrated by means of large charts, skeletons, manikins, and dissection. Important points of difference between human and animal physiology are pointed out, in preparation for the third year's work, in the veterinary class. Matters of home and personal hygiene are interwoven with the physiology work.

COOKING

Cooking extends through five terms of the curriculum. The subjects covered in each term are as stated below:

First term, C year: Furniture and equipment needed in a home kitchen; best methods of managing kitchen work, caring for kitchen and dining room utensils, furniture, etc.; the place of measuring and weighing in cookery; the preparation and serving of vegetables, cereals, and bread.

First term, B year: Cooking is again taken up; the special topics being the preservation of fruits and vegetables by canning, preserving, pickling, and jelly-making. The selection, preparation, and serving of meats of all kinds is also considered. A sufficient amount of practical work is given in each case to illustrate the principles brought out. A special study of table service is begun during this term and extends through the year, a practice dinner being given by a portion of the class in the class dining-room each month.

Second term, B year: Eggs are considered as to selection, preservation, food value, different ways of cooking and serving. The preparation and serving of soups and beverages is considered, together with their food value. The subject of salads is considered in a similar way.

First term, A year: This is devoted to the marketing and care of food. The preparation and serving of dairy foods, and made-over dishes and dishes for invalids receive special attention.

Second term, A year: This is devoted to the preparation and serving of desserts, and to the study of food rations, dietaries, bills of fare, confections, etc. A free use is made of the U. S. Bulletins during the year, in the hope of arousing a greater interest in the food question and encouraging home reading along this line.

DAIRY CHEMISTRY

The chemical and allied changes which take place in the handling of milk and its manufacture into butter and cheese and the application of these principles to the production of milk and its products form the basis of this work.

DAIRY HUSBANDRY

Farm Dairy Lectures.—A course of lectures is given in farm dairying, giving instruction in the care of milk and utensils, explaining the principles involved in creaming milk by the gravity and centrifugal processes, and

giving full instruction in regard to running farm separators and the manufacture of butter and cheese in the farm dairy.

During the last half of the first term, students receive instruction in regard to the characteristics of the various breeds of dairy cattle, their origin and comparative adaptability for the dairy. Lectures are given upon the points desirable in animals intended for the dairy. The students have practice work in judging dairy stock.

During the second term lectures are given covering both the scientific and practical phases underlying the principles of feeding. Practice work is given in compounding rations and estimating the comparative value of food stuffs.

Commencing the first Tuesday in February, lectures in bacteriology are given the girls in place of dairy feeding. This work treats in an elementary way the subjects of bacteria, yeasts, and moulds in the home. It is the purpose of this course to familiarize the young women with the growth and character of fungi commonly met in household and dairy management. A microscopic examination and study of the more common forms of fungi is made and special stress is laid on the practical application of the subject to the home.

Dairy Practice.—Students receive instruction in the most advanced methods of creaming milk, ripening cream, churning, working and packing butter, the manufacture of sweet curd cheese, and measuring the value of milk by the Babcock test and lactometer. This practice-work begins the second week of the first term and continues throughout the school year.

DOMESTIC CHEMISTRY

The composition of human foods and their combination to form balanced rations; dietary studies of families; cost and value of foods; chemical changes and losses in the cooking and preparation of foods; cereal food products; animal food products; fruits; adulterations of foods and their detection; fuels, soaps, disinfectants, dye stuffs and colors; the composition of common household utensils; the household water supply; preparation of home-made baking powders; bakers' chemicals; the composition, food value, and characteristics of tea, coffee, chocolate, cocoa, molasses, honey, vinegar, spices, flavors, extracts, etc.; the grading and testing of wheat flour; the chemistry of bread making, and household sanitation form the essential parts of this work.

Laboratory practice is given in the study of the composition of foods and in detecting adulterations of different foods, such as milk, cream, butter, oleomargarine, lard, cheese, coffee, tea, vinegar, catsups, jellies, flavors and extracts, baking powders, cereal breakfast foods, and flour. The aim of this work is to give students an idea of the composition, uses, and value of food materials, and the part chemistry takes in sanitation and household affairs.

DOMESTIC HYGIENE

Instruction is given concerning the causes and nature of infectious diseases, their modes of spreading and means to be taken to limit their spread. The common preventable diseases, typhoid fever and tuberculosis, are discussed and special stress is laid upon the importance of personal hygiene in limiting the transmission of these diseases.

Hygienic requirements as to food, clothing, rest, and exercise are considered, and suggestions are given in regard to personal hygiene during the periods of childhood, girlhood, and motherhood.

DRAWING

The drawing course is so arranged as to prepare the student to make working drawings of broken parts of machinery, to design out-buildings, and to read and interpret intelligently plans and specifications made by contractors. In view of this the first term is devoted to working drawings of castings; the second term, to simple architectural design.

DRESSING AND CURING MEATS

The instruction given the boys consists of demonstration lectures on the preparation of meat for farm use. They are required, in addition, to take two weeks' practice in dressing, cutting, and curing such meat as is likely to be used on the farm. Work is also given them in selecting and judging fat stock, and in judging dressed meats.

ENGLISH

Applicants for admission to the School, who are deficient in the knowledge of the inflections of the parts of speech, the classification of phrases and clauses and case constructions are required to make up the deficiency by a course in grammar, for which no school credit will be given.

C Class. In the first year, English is studied five hours a week for one term. Three hours are given to constructive work with almost daily practice in writing short exercises based on Mayne's Modern Business English. Two hours are given to the interpretation and analysis of literature.

B Class. In the second year, English is studied two hours a week for two terms. The writing of weekly themes and the study of the forms of discourse constitute the work.

A Class. In the second term of the third year a course in Rhetoric is given covering four hours a week. The object of the training is fluency and correctness in written and oral English. The writing of the graduating thesis is a part of the course.

ENTOMOLOGY AND ZOOLOGY

The class receives instruction of a practical nature. The course is divided as follows:

Classification of insects; habits and life histories of injurious forms, with special attention to insect pests found in Minnesota. The nature of the different insecticides and methods of application are discussed. The student spends some time in becoming acquainted with the appearance and habits of beneficial insects. About four lectures on bee keeping are also given. Each student must collect fifty insects, representing at least twenty-five different kinds.

The four-footed pests of the farm, rabbits, gophers, squirrels, etc., as well as injurious and beneficial birds, are also studied.

FARM ACCOUNTS

The work in Accounts is applied to the transactions which the student meets in the various duties of the farm and household. He is taught to keep his accounts, that he may know at any time the profit or loss in any department of his business, and is thus enabled to plan intelligently.

FARM IMPLEMENTS

In the study of Farm Implements different types and makes of the various classes of farm machines are brought together in the classroom. Here ample opportunity is given for a comparative study, including adaptability and efficiency of each type, the aim being to make students familiar with construction and working parts of all the classes. Special attention is given to convenience, durability, and adaptability, cost of machinery equipment for different types of farms, life, depreciation, and care of same.

FARM MANAGEMENT

Systems of farming; selection of farms; rotation of crops and the planning of rotations suitable to the students' home farms and to farms operated under different systems; the cost of producing farm crops; marketing farm products; business methods applied to the farm, and a statement of the farm business are given.

An accurate plan of the home farm, showing fields with crops raised on each and yields, and the location of farmstead and buildings, is required upon entering this course. Before leaving for home at the close of the first year, students should consult with the instructor on this subject and obtain from him directions and blanks, so that the work required upon entering may be performed at home during the summer, where it may be easily and accurately completed.

FARM MATHEMATICS

Instruction in this subject consists of drill for accuracy and speed in the simple processes of mathematics and the application of principles to problems where measurements of material, extension, capacity, etc., are required. Students are prepared also to handle with ease the mathematics of the technical courses in the School.

Students deficient in Arithmetic will be given special work to prepare them for Farm Mathematics.

FEEDING

The principles of feeding as applied to the growing of horses, beef cattle, sheep, and swine are taught. Special attention is given to the choice and preparation of food for animals during different periods of growth, and during the time they are used for breeding purposes, and to summer feeding and pasturage. Practice is given in compounding rations that will include in the best manner the food-stuffs commonly produced on the farm. Practical lessons in feeding are given at the barns under the supervision of an experienced feeder. Each student thus learns the requirements of each class of stock.

FIELD AGRICULTURE

This work consists of a study of those portions of geology relating to soil formation; effect of the glaciers on the soils of Minnesota; origin of soils in the various agricultural regions of Minnesota; classification of soils; soil moisture and soil tillage; land areas and the planning of fields and farms; the classes of field crops, as grains, grass, and cultivated crops; the relation of these crops to each other in a systematic rotation and in their relation to soil fertility; the origin, distribution, and uses of cereal crops and other field crops.

FORESTRY

Forestry includes the consideration of the formation and care of windbreaks and shelter-belts; the laying out and planting of home grounds; discussion of the hardiness, habits, and value of our native and introduced trees, and the methods of propagating them.

FRUIT GROWING

Fruit-growing is taught with reference to raising fruit for market and in the home garden.

GRAIN AND CORN JUDGING

This course consists of a discussion of the use and value of the score-card; a study of the structure of each of the classes of seeds; a brief history and study of the characteristics in detail of each of the varieties considered; the adaptability of varieties to different localities; the conditions affecting yield; score-card practice and comparative judging, to impress upon the mind of each student the details to hold in mind in the selection of good seed grain.

GYMNASIUM WORK

The gymnasium is a large, well-lighted, two-story brick building. It is well supplied with heavy apparatus for general gymnastic and athletic exercises, together with such appliances as are necessary for the development of a symmetrical body. Besides being fitted up with the finest apparatus, it possesses space and equipment for sprinting, pole vaulting, hurdling, high and broad jumping, shot-putting, etc.

Class work in physical training is required of all undergraduate young men not excused on account of physical disability. Courses are offered on the heavy apparatus, in corrective work, class drills, and athletic training. In addition to the regular class drill, a certain part of which consists of training in athletic sports, the School is represented by a strong basket-ball team, a track athletic team, and hand-ball team.

HOME ECONOMY

The lectures in Home Economy are a study, not only of the just proportion between expenditure and income, but of definite proportion in the expenditures made for existence, comfort, culture, and philanthropy. A study is made of the sources of income; especially of the income from the farm in the form of house, food, and luxuries; the purchase of necessities, such as household stores and furnishings, is considered from the standpoint of the suitable; and desirability shown of saving something to be used in securing things which promote culture and comfort. The relation of cash and credit to cost is also considered. Attention is given to saving and forms of investment, a bank account, and the use of a check book. Students are required to submit an account setting forth in detail the use of a certain named income expended in the support of a family for one year, embracing not only every item of necessary home expense, but also an outlay made for travel, luxuries, accident, sickness, or other emergencies. The habit of keeping a household account is calculated to strengthen the judgment in the wise use of money.

HOME MANAGEMENT

This subject includes both housekeeping and home-making; and the instruction is based on the belief that housekeeping is a business as impor-

tant as it is difficult, and that home-making is the noblest form of human endeavor. The care of the house and household belongings, of the food, utensils, plumbing, etc., as well as the general ordering of family life, are considered in their relation to an adequate plan for home management. The end sought is to start the student in the right way of becoming mistress of the business of housekeeping and home-making. The practical benefit to be derived from the knowledge students gain in the cookery, sewing, dairy, laundry, and other classes is emphasized and shown in its relation to an adequate plan for the daily program for the home.

HOME NURSING

A course of lectures will be given on the subjects of contagion and the care of contagious diseases; how to treat snake bites and other poisonous wounds; how to apply splints to all kinds of fractures, and how to stop the flow of blood in case of hemorrhage. Practical demonstrations will be given in the making of bandages and applying the tourniquet. A bed will be placed before the class and the students taught to make it up with the patient in it. Stretcher drill will be given. The common poisons and their antidotes will be taught, and what to do while awaiting the arrival of the doctor.

HOUSEHOLD ART

Lectures are given upon house and grounds, noting the distinctive character of the country home; the sanitary conditions involved in the selection of the site of the house, also the influence of the outlook; an elementary study of architecture in connection with planning a house which will provide a "place for everything" required in housekeeping operations and family life; instruction in the fundamental value of color, form, and design; training the taste and emphasizing the laws of hygiene that should influence the selection of materials and styles in the finishings and furnishings of the house.

LAUNDERING

Second term, C year: The aim is to give the students a knowledge of the best means of cleansing all fabrics, with little injury to the cloth or color. Approved methods of cleansing by the use of chemicals, as in removing grease spots, stains, etc., are given.

LITERARY SOCIETY WORK

Any student belonging to a recognized literary society of the School may receive credit in the course of study for the work done therein, by registering at the beginning of the term, and submitting to the teacher

in English all essays to be read by such student before the literary society, and rehearsing to said instructor all essays, readings, or recitations, with a view to correct pronunciation, expression, etc.

MEATS

The instruction given to the girls in the subject of meats pertains to the selection and value of different classes of meat, and to the best methods of curing and preserving.

MILITARY DRILL

Under the provisions of the Act of Congress of 1862, establishing the "Land Grant Colleges" of the United States, instruction in Military Science and Tactics is required to be given at all colleges which are its beneficiaries. For this purpose the United States Government furnishes the Department of Agriculture with the necessary arms and equipment, and details an officer of the regular army to take charge of military science and tactics.

All male students of classes B and C, not physically unfit, are required to attend military drill. For the A class, drill is an elective.

Military instruction is intended to be so conducted as to develop a soldier-like bearing and foster a spirit of gentlemanly courtesy, soldierly honor, and obedience to lawful authority, as well as to familiarize students with battalion manoeuvres, guards, and the theoretical and practical use of firearms.

The officers and non-commissioned officers are required to be good students in the other departments, soldier-like in the performance of their duties, exemplary in their general deportment, and able to pass a creditable examination in drill regulations.

In general, the officers are selected from the A class; sergeants and corporals from the B class.

MUSIC

Instruction in this department takes in elementary theory, sight singing, and music history. The course is planned to give the students a basis for musical appreciation and culture, as well as a practical knowledge of musical forms and terms. Special attention is given to habits of breath control and the enunciation of words, and a thorough system of solfeggio is employed.

For students whose voices and training will admit them, there is offered a chorus class, consisting of a mixed chorus, a women's chorus, and a male chorus. This offers special advantages for musical development and experience.

A student orchestra is maintained which assists in public exercises given by the School.

A band is organized with military regulations, under the direction of the instructor in music. Boys owning instruments and having band experience are urged to make application for this work.

PHYSICAL TRAINING

The work done in this department aims at symmetry, co-ordination, and control, rather than mere physical strength. It is planned to improve the functional activity of the body and to counteract and correct tendencies toward incorrect development, especially those resulting from the artificial life of civilization. The work of the beginning class is free-hand, based upon Swedish principles, and directed especially to deep breathing, correct carriage and posture. The work of the advanced class includes the use of light apparatus and aesthetic movements looking to grace and suppleness in action. Games and folk dances are part of the work of both classes.

PLANT PROPAGATION

In this subject the principles underlying the development of cultivated varieties of plants are taught; also the propagation of plants by seed, cuttings, grafting, and budding. The work of the classroom is illustrated by the orchards, nurseries, forest plantations, gardens, and greenhouses on the grounds of the Experiment Station, and by visits to commercial nurseries and greenhouses near by.

POULTRY

The instruction in this subject will include the following topics: History and characteristics of the leading breeds of poultry; breeding, rearing, and management of fowls for eggs and for the market; planning, building, and arrangement of poultry-houses; managing incubators and brooders. A model poultry-house, containing pens of the most improved breeds, incubator-cellar, work-room, etc., has been provided, where experimental work and practical instruction are carried on.

PRACTICUMS

Instruction and practice are given in doing practical things about the fields and barns; fence-building; road-making; water supply; planning daily program on farm; land descriptions and measurements; soldering; pipe-fitting; rope-splicing; making rope halters; cement work; gasoline engines, etc.

SEWING

Instruction is given in the principles and use of healthful and appropriate clothing, and in the needlework of the home. The course provides

for six terms' work. During the first term, instruction is given in the elements of sewing, including different stitches, seams, hems, and the various kinds of mending, and the cutting and making of a cooking outfit; also practical talks on the use and care of the sewing-basket, touching the history of the various implements, and upon the textiles used—cotton, wool, linen, and silk.

In the second year, instruction is given in cutting and making plain garments, drafting underwear, shirt waists, and cotton dresses—taught by a simple method in which only a tape line and square are used.

In the third year the more difficult work of dressmaking is taken up, including pattern-drafting, designing, cutting and fitting dresses. A practical aid to the work in this subject is offered by a museum of exhibits. These exhibits are kept in classrooms, and include primitive and modern sewing implements, weaving processes, and the various cloth fibres.

Lectures are given on the utilitarian and art values of various textiles, and attention is paid to harmony in color.

SOCIAL TRAINING

A course of lectures is given on the usages of society, including manners, behavior, the voice, conversation, forms of address, invitations, etc. Suggestions are made in reference to reading, literary taste, and the choice of books. Special stress is given to the thought that the family life ought to be the highest expression of good society, and that next to the power of thinking correctly is the power of approaching others with ease, and of speaking with tactful directness.

SOILS AND FERTILIZERS

Some of the topics studied are: The formation of soils; adaptability of crops to different kinds of soil; chemical composition of soil; physical analysis of soils; interpretation of soil analyses, the judging, rating, and scaling of soils, alkali soils, acid soils; humus and its relations to soil fertility; the factors governing the increase and decrease of the nitrogen of the soil; farm manures: their composition and uses, and their action upon soils; green manures, commercial fertilizers, special-purpose fertilizers and their use; the influence of different methods of cultivation upon the fertility of the soil; the food requirements of farm crops, the rotation of crops as affecting the fertility of the soil; the income and outgo of fertility from farms where different systems of farming are followed; the general principles of soil exhaustion and soil improvement, and the various factors which affect the fertility of soils. The classroom work is supplemented by laboratory practice.

STOCK JUDGING

Score-cards are used to an extent sufficient to familiarize students with that method of judging, and special efforts are made to do systematic

and closely critical work in the selection of animals representative of the breeds and for breeding purposes. Living specimens are used, and rings made up for the student contests in stock judging. In connection with the work in dressing and curing meats, the judgment passed on live animals for the block is verified by score-cards, judgment of the dressed carcasses, and by actual block tests. These tests are made by the students, and bring out the percentage of meat in each commercial cut of the carcass. The quality of meat is passed upon in this connection by experts, and a careful report made to ascertain the type of animals best calculated for the production of the most meat of the best quality.

STUDY OF BREEDS

The market classes of horses, cattle, sheep, and swine are taken up briefly to bring out the form, quality, and condition desirable and common to the different classes. This is followed in each class of stock, with the most common and valuable breeds for the State. These are studied carefully as regards their characteristics and origination, and as to their adaptability to the different Minnesota conditions. This work is illustrated with stock from herds and flocks maintained at University Farm for this purpose.

VEGETABLE GARDENING

Vegetable gardening embraces the study of garden tillage irrigation and rotation of crops; transplanting; formation and care of hotbeds; study of garden insects; and the growth of various vegetable crops.

VETERINARY SCIENCE

During the A year the student takes up a course of study in Veterinary Medicine, the purpose of which is to fit him for intelligent care of his farm stock. In this course the teaching is done by means of lectures and reviews and clinical work at the hospital maintained for this purpose. Lectures are illustrated by means of stereopticon charts, manikin of horse, skeleton of horse, and various other appliances.

The work covers the following subjects: Elementary anatomy; elementary pathology; cause and prevention of diseases; diagnosis and treatment of common diseases; examination for soundness; and a final short course on common medicines, studying their effect, uses, and doses. At the hospital clinics, students are enabled to examine and care for a variety of cases and to learn the elements of diagnosis for the more common diseases and forms of lameness.

INTERMEDIATE YEAR

For Graduates of the School of Agriculture Who Wish to Enter the College of Agriculture

This course will not be offered after the school year 1912-13, but it is proposed to offer two years of advanced work along agricultural lines, to graduates of the school course only, who desire to spend further time in study. Those who complete this course with proper grades may, if they so desire, enter the College of Agriculture on equal footing with graduates from accredited high schools.

The course of study in the School of Agriculture extends over three years, and the school year is six months long. This is not designed to prepare for college work. For those who wish to enter the College it is necessary to supplement the course offered in the School of Agriculture by an additional year's work of nine months in general academic branches. The subjects offered in the intermediate year can be taken elsewhere, in any accredited high school, before entering the College of Agriculture. This intermediate year enables graduates of the School of Agriculture to enter the College of Agriculture on the same basis of preparation as that of students entering other departments of the University. English and Mathematics are given prominence in the intermediate year.

The following prescribed course, or its equivalent taken in some other school, is required of graduates of the School of Agriculture who desire to gain admission to the College of Agriculture:

First Semester

Elementary Algebra [5]
Plane Geometry [5]
English [5]
General History [4]

Second Semester

Higher Algebra [5]
Plane and Solid Geometry [5]
English [5]
General History [4]

The course in Algebra for the intermediate year covers Downey's Complete Higher Algebra, through logarithms, except chapter 14, Part I, and chapter 18 and parts of 19 and 20, Part II, covering subjects not specially pertinent to the work of this College. The course in Geometry covers Gore's Geometry, from Book I to VIII, or equivalent texts except the work in symmetry, maxima and minima.

Special attention is given in both above courses to practical problems, short methods of computation, and a good foundation for Plane Trigonometry. These courses are open to all who have completed the work in Algebra in the third year of the School of Agriculture, and are required of all students entering college courses, except that the second term Algebra is not required for the course in Home Economics. Regular high school graduates will be required to take the work of the second semester in Higher Algebra unless they can furnish regular high school record in same.

The work preliminary to these courses is done by the student in the A year in the School of Agriculture.

Intermediate English is required of those who intend to enter any of the colleges. It consists of a study of masterpieces necessary for college entrance, the history of English literature, and considerable writing on subjects in connection. It is given five hours a week for two terms.

SHORT COURSES

THE SHORT COURSE IN TRACTION ENGINEERING

The growing use of traction engines in general farm work has made it advisable to offer a special course in the use of power machinery as one of the Short Courses in the Department of Agriculture of the University of Minnesota.

The course is complete in itself, covering four weeks of study and practice. The mornings are devoted to lectures and classroom work, and the afternoons to actual practice in the various departments, under the supervision of the instructors of the School.

Such a course opens a great opportunity to the young man interested in mechanics, who has had some practical experience in the handling of engines, enabling him to acquire in a short time valuable training in the theory and practice of engineering.

The entire equipment and the staff of the Division of Agricultural Engineering are at the disposal of this course, and provide a splendid opportunity for pursuing the work.

A special circular giving full particulars regarding this course will be sent upon application to the Registrar, University Farm, St. Paul.

STATE TEACHERS' TRAINING SCHOOL

A State Teachers' Training School will be held at University Farm, beginning June 17th, and closing July 27th.

This school has been organized by authority of the Department of Public Instruction, and will be conducted under its supervision. Through the special courses offered, it is expected to serve the teachers of the entire state, and at the same time to afford special advantages to teachers of near-by counties, in which training schools are not held.

The general aim of this school is to offer suggestive and practical methods and aids to teachers of rural schools. It has a two-fold purpose. One is to offer a review of the elementary studies, together with training in methods, and a consideration of the questions relating to organization and conduct of rural schools. The second is to meet the present general demand for industrial training. Courses will be offered in Elementary Agriculture, Home Economics, and some simple Manual Training work. Work will be taken up in all the academic subjects that are required for the first and second grade state teachers' certificates.

A circular describing this course may be obtained by addressing the Registrar, University Farm, St. Paul.

DAIRY SCHOOL

This course is designed to furnish persons who are actually engaged in the manufacture of butter and cheese, in creameries and cheese factories,

an opportunity to become more skilled in their work, and also to study the many problems which have a direct bearing upon the dairy industry. Recognizing the fact that such persons cannot be away from business for a long period, the term has been so arranged that the time of each student is fully occupied by lectures and actual work in the creamery training-room every hour of every working day of the term.

The next session of the Dairy School will open Monday, November 11, 1912, and continue four weeks.

A special circular giving full information concerning this course will be mailed to prospective students who request it.

Requirements for Admission.—Experience has shown that students who have had some practical training in the creamery or cheese factory before coming to the Dairy School are, as a rule, the ones who are able to make the most of the course; it is therefore required that persons who intend to take this course shall have had at least one season's experience before coming to the school. No entrance examination is required.

SHORT COURSE FOR FARMERS

The Short Course for Farmers was established by the University of Minnesota to meet the needs of the large class of enterprising farmers who are unable to avail themselves of the regular courses in Agriculture. It has been offered for eleven years, and, as it now stands, is the result of meeting the problems of the practical, progressive farmer.

The time devoted to this course is so limited that the selection of topics has been made with great care, in order to give the largest amount of information and training possible. The daily work will be given in lecture form and by demonstrations, covering the important branches of Agriculture, Horticulture, and Live Stock Growing. Special attention will be given to the judging of grains, soils, and animals.

This course offers exceptional opportunities for the study of the latest investigations in Agriculture and their application to work on the farm. It should appeal to the man of mature years, who is ambitious to become familiar with the best agricultural thought and practice.

A special circular describing this course will be ready for distribution early in the Autumn of 1912.

Requirements for Admission.—There is no entrance examination, and no age limit is prescribed. Any man or woman interested in farming and the betterment of farm life is eligible.

Time of Session.—The Short Course for Farmers opens the third week in January, and continues for four weeks.

Expense of Course.—There will be a registration fee of \$5 for the entire course or any part of it. This charge covers the whole course, and no deduction is made for those who desire to take but a special part of the work, or who for any reason are absent from regular lectures.

THE AGRICULTURAL EXPERIMENT STATION

The Agricultural Experiment Station of the University of Minnesota was established by National and State Legislation in 1887. The function of the Experiment Station as set forth in the Hatch Act is "to aid in acquiring and diffusing among the people the useful and practical information on the subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science." The funds provided by the National Government have been supplemented recently by the Adams Act which will ultimately provide \$15,000 annually, and appropriations for special lines of experimental work have also been made by the State Legislature.

The Experiment Station is located at University Farm, St. Paul, and is one of the Divisions of the Department of Agriculture of the University of Minnesota, and the officers of the Station are also professors and instructors in the School and College of Agriculture. The chief executive officer of the Station is the Director, who is also Dean of the College of Agriculture. Affiliated with the main station are a score or more of trial stations maintained by the State Horticultural Society. The Experiment Station also carries on co-operative tests and investigations with the U. S. Department of Agriculture and with farmers in various parts of the State.

Experiments are conducted in the following lines of work: Agronomy, Farm Management, Agricultural Chemistry, Entomology, Horticulture, Veterinary Science, Dairying, Plant Pathology, and Agricultural Engineering.

NORTHWEST EXPERIMENT FARM

To give special consideration to local conditions in the northwestern part of the State an experiment farm was established at Crookston in 1895. The farm contains 450 acres and is one mile north of the city. It has a well-equipped poultry plant from which much good breeding stock is being distributed among the farmers. With aid from the U. S. Office of Experiment Stations the farm is taking an active part in testing surface and tile drainage for the Red River Valley region. It is also encouraging a more extensive growing of clover. The School of Agriculture at Crookston is operated in connection with the farm.

EXPERIMENT FARM AT GRAND RAPIDS

The Legislature of 1895 also provided for a second experiment farm to make possible a more thorough study of the agricultural conditions of the northeastern portions of the State. This farm was located at Grand Rapids, April 6, 1896, and lies two miles east of the village. It contains approximately 375 acres of land, with the necessary farm equipment consisting of dwelling house, barns, machinery, live stock, etc.

LIST OF BULLETINS PUBLISHED DURING THE FISCAL
YEAR ENDING JUNE 30, 1911

Bulletin No. 121. Orchard and Garden Spraying.

Bulletin No. 122. The Smuts of Grain Crops.

Bulletin No. 123. Cut Worms, Army Worms, and Grasshoppers.

Bulletin No. 124. The Cost of Minnesota Dairy Products.

The bulletins of this Station are mailed free to all residents of this State who make application for them.

SUMMARY OF ATTENDANCE

DEPARTMENT OF AGRICULTURE 1911-12

College of Agriculture—

	Men	Women	Total	
Graduate Students.....	14	2	16	
Special Students.....	6	6	12	
Normal Students.....	..	65	65	
Agricultural Course:				
Senior Class.....	8	..	8	
Junior Class.....	21	..	21	
Sophomore Class.....	41	..	41	
Freshman Class.....	51	..	51	
Forestry Course:				
Senior Class.....	14	..	14	
Junior Class.....	8	..	8	
Sophomore Class.....	23	..	23	
Freshman Class.....	19	..	19	
Home Economics Course:				
Senior Class.....	..	14	14	
Junior Class.....	..	10	10	
Sophomore Class.....	..	32	32	
Freshman Class.....	..	83	83	
	205	212	417	417

The School of Agriculture—

Intermediate Year.....	18	7	25	
A Class.....	106	42	148	
B Class.....	227	98	325	
C Class.....	247	135	382	
Dairy School.....	598	282	880	880
Farmers' Short Course.....	96	..	96	
Junior Short Course.....	122	5	127	
Traction Engineering Course.....	203	107	310	
Teachers' Training School.....	38	..	38	
College Summer School.....	51	838	889	
	25	45	70	
	535	995	1530	1530

School of Agriculture at Crookston.....	122	37	159	
School of Agriculture at Morris.....	67	24	91	
	189	61	250	250

Total in Department of Agriculture.....				3077
Less Duplicates.....				21
Total.....				3056

STUDENTS

INTERMEDIATE YEAR—25

Aamodt, Arne W., 857 Albemarle St., St. Paul	Lathrop, Leslie T., Hugo
Anderson, Arthur L., 1485 Cleveland Ave., St. Paul	Mattice, Norman L., 1365 Waverly Place, Minneapolis
Bahls, Ernest J., 1946 Iglehart St., St. Paul	Melin, Robert, Monticello
Baker, Ernest C., Monticello	Nelson, Dan M., 2800 Plymouth Ave. N., Minneapolis
Barsness, Tilda B., Glenwood	Peterson, Fred O., Olivia
Berg, Alma, 3610 Vincent Ave., Minneapolis	Samuelson, Ruth V., Lafayette
Brann, Alonza S., 1015 Mary Place, Minneapolis	Snell, Ruth E., 403 Dewey Ave., St. Paul
Edwards, Irene, 806 4th St. S.E., Minneapolis	Sorensen, John A., Clinton
Elsberg, Ellen, 1617 9th Ave. S., Minneapolis	Steffens, Bonnie R., Racine
Friedman, David T., St. Charles, Ill.	Villars, Wendell D., 18 Barton Ave. S. E. Minneapolis
Gill, James N., Northfield	*Weium, Olaf M., Mabel
Hamilton, Vida L., Osseo, R. 1	Winters, Lawrence M., Mazeppa
Jones, Laurence G., 2315 Polk St. N. E., Minneapolis	

A CLASS—148

Aamodt, CarlGraschus, 857 Albemarle St., St. Paul	Day, William E., Granite Falls
Aamodt, Olaf Sever, 857 Albemarle St., St. Paul	DeMerell, George Stephen, White Bear
Anderson, Clara Alida, 2701 University Ave. S. E., Minneapolis	Devine, Florence Avellia, New Brighton
Anderson, George Harold, Ortonville	Enright, Agnes B., Rose Creek
Anderson, Minnie, Hopkins	Flaten, Alice Leone, Granite Falls
Arneson, Clarence, Shelly	Fletcher, Ralph Olmstead, St. Louis Park
Arnold, Christian Lucius, Watkins	Frost, Ruth Miriam, 420 Dewey Ave., St. Paul
Avery, Wilbur Lee, Austin	Gehl, Anna Henrietta, Kinbrae
Bede, Russell, Pine City	Gillett, Newton M., Blue Earth
Benrud, Ole C., Goodhue, R. 3	Gilman, Percy Clay, Medford
Berg, Jesse Fred, Dundas	Gold, Glenn W., Redwood Falls
Berge, Elizabeth, 2117 Langford Ave., St. Paul	Gould, Orrin Everett, Fairmont
Berge, Inga Marie, 2117 Langford Ave., St. Paul	Griffith, Benjamin, Ottawa
Bergland, Clifford T., Clearbrook	Halverson, Emil W., New Ulm, R. 3
Borgeson, Carl Stevens, LeSueur	Hansen, Harry J., Rockville
Bostad, Lawrence S., Fosston	Haverstock, J. Louise, 3424 5th Ave. S., Minneapolis
Bremer, Henry Carl, Lake City, R. 1	Hecht, Erwin B., Waseca
Bruesehoff, Rose Dorothy, Norwood	Hibbard, John Culver, Northfield, R. 8
Bryan, Harold Edwin, Red Wing, R. 2	Hilden, Ellen A., Watson
Bureau, Edna Ruth, Breckenridge	Hilgers, Frank H., Barnesville
Burquest, Arden Enoch, Robbinsdale	Hoel, Ruth A., 713 Chamber of Commerce, Minneapolis
Carlson, Carl Joseph, Brookfield	Holen, Thomas, Lowry
Carr, Eugene Dickenson, Excelsior, R. 3	Holzgraf, Wesley Albright, Blue Earth
Carson, Foster, Pipestone	Hopkins, William Lloyd, Sta. F., R. 1, Minneapolis
Cass, Lucilla, Brainerd	Howe, Charlotte B., Robbinsdale, R. 3
Comaford, Harold Coupland, Monticello	Howie, Fred Robert, Dennison
Crowther, Earl Lindon, Fairmont	Hulbert, Howard Horace, Excelsior, R. 3
Darling, Lela, 327 19th Ave. S. E., Minneapolis	Hulbert, Karl E., Excelsior, R. 3
	Jacobson, Cecile Louise, Madison
	Jarshaw, Olga A., Madison

*Died November 6, 1911.

- Jenkins, Hugh L., Amboy
 Johansen, Mads Erik, Tyler, R. 1, Box 55
 Johnson, Arthur Wilbur, 4405 Pleasant Ave., Minneapolis
 Johnson, Joseph T., Kasota
 Johnson, Oscar Ruthford, Center City
 Kelley, Marie Pauline, 836 E. 4th St., St. Paul
 Keogh, Paul Lucas, Deer Creek
 Kinsey, Grace Marian, Ottawa
 Knutson, Albert A., Adams
 Knutson, Albert Rudolph, Pelican Rapids, R. 3
 Kobler, Fred L., Deer Creek
 Kottke, Lillian, Hutchinson
 Krebs, Thomas G., 1217 4th St. S. E., Minneapolis
 Kyle, Cecil F., 2647 Taylor St. N. E., Minneapolis
 Labbitt, Raymond Walter, 1488 Capitol Ave., St. Paul
 LaPlant, Dorothy Ellen, Elk River, R. 3
 LaPlant, Guy Alfred, Elk River, R. 3
 Larson, Minnie, Pipestone
 Lee, Severine Anette, Kenyon
 Lewis, Percy Eugene, Lewisville
 Lillejord, Hans Claus, Bellingham
 Lincoln, Guy E., Pipestone
 Long, Walter C., White Bear
 Lord, Clarence Bertrand, Hugo
 Lundell, Leon N., 707 Penn Ave., Minneapolis
 McKenney, Robert Lynn, 1403 21st Ave. N., Minneapolis
 Mahlum, Howard Jerome, 722 S. 6th St., Brainerd
 Martenson, Alfred C., Granite Falls
 Mellan, Tessie F., 14 Atty St., St. Paul
 Merrill, William Charles, Jr., 2107 Commonwealth Ave., St. Paul
 Montgomery, Lynn Vernom, Weaver
 Mosman, Sidney A., Monticello
 Nelson, Albert Marinus, Grove City, R. 3, Box 43
 Nelson, Harold Bernard, Afton
 Nelson, Jennie, Delano
 Nelson, Lillian Marie, Cor. Langford and Snelling Ave., St. Paul
 Nelson, Walter Otto, Wahpeton, N. D.
 Ness, Lumen E., Lanesboro
 Nettleton, Gertrude Eunice, Stockton
 Olson, Alice Emelia, Copas
 Olson, Eva Elizabeth, 3128 Park Ave., Minneapolis
 Olson, Oscar Albert, Truman
 Ouren, John B., Hanska
 Pauley, George Charles, St. Bonifacius
 Peters, William Harrison, Litchfield, R. 3
 Peterson, Edward W., Ruthton
 Peterson, Elmer Lewis, Sleepy Eye
 Peterson, James M., 3754 Portland Ave., Minneapolis
 Quanrud, Lillie, Spring Grove
 Raudenbush, Inez, 2382 Doswell Ave., St. Paul
 Runck, Frederick William, Springfield
 St. Martin, Carrie R., Sta. F., R. 1, Minneapolis
 Sandvig, Edwin O., Kerkhoven, R. 2
 Sandvig, Julius N., Kerkhoven, R. 2
 Sargent, Lee W., Red Wing, R. 3, Box 3
 Schattenberg, Adolph Gustave, Boerne, Texas
 Schroeder, William H., White Bear
 Selthun, Ennis Alvina, Rolette, N. D.
 Seward, Arthur Hillis, Farmington
 Sheets, Russell S., Gary
 Skrivseth, Clarence J., Turtle River
 Stay, Henrietta, Glendaredo
 Stensrud, Martin L., Watson
 Stoddard, Mildred, 1247 Laurel Ave., St. Paul
 Swanson, Carl Victor, Red Wing
 Swanson, Elmer Gideon, 813 25th Ave. N. E., Minneapolis
 Teigen, Rudolph C., Watson
 Thomas, William Arthur, Spartanburg, S. C.
 Thompson, Cleve Charles, Badger
 Thotland, Jessie May, Robbinsdale, R. 2
 Tongen, Ole O., Hazel Run
 Torgerson, Ingvald C., Whalan
 Tosterud, Martin, Caledonia
 Turner, Herman Maynard, St. Peter
 Tvedt, Palmer O., Ada
 Utley, Florence, 818 Edmond St., St. Paul
 Utter, B. Adolph, Ceylon
 Voxland, Lena Josephine, Kenyon
 Warde, George A., Robbinsdale
 Weeber, Philip H., New Brighton
 Wells, Hugh Harold, Rush City
 Willey, Grace Darling, Holmen, Wis.
 Willey, Stephen L., Holmen, Wis.
 Wilson, Bessie Mathilda, Ihlen
 Wilson, Hugh Robert, Pipestone
 Youngberg, Alfred Grover, Howard Lake
 Youngberg, Gustavus Benson, Howard Lake
 Ziebarth, Arthur W., Osseo
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 Zignego, John Francis, 2304 14th Ave. S., Minneapolis

B CLASS—325

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 Anderson, Elvin W., Hills

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 Barton, Emily, Silver Lake
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 Crane, Lucas M., Garden City
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 Eisert, Jesse J., Morristown
 Erickson, Christine, Minneapolis, R. 3, Sta. F
 Erickson, Edwin H., Olivia
 Erickson, Elmer J., Battle Lake, R. 3
 Ericson, Laura M., Hector
 Ericson, Palmer E. N., Goodhue, R. 6
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 Farmer, William P., Airlie
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 Geiken, John J., Mankato
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Hanson, Herman C., Ortonville
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Holtan, Martin I., Dawson
Huntsinger, Lillian H., Oronoco
Hurdelbrink, George E., Brownsville
Illescas, Octavio F., Callao, Peru
Ingberg, Benhard, Hendrum
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Jensen, Mary, Milaca
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Johnson, Christine E., Milltown, Wis.
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Jones, William N., Russell
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Korista, Chesty J., Silver Lake
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Larson, William S., Center, N. D.
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Loveland, Edwin C., Richville
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McCallum, Laura G., New Brighton
McDougall, Blaine, Royalton
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Marshall, C. Ray, Windom, R. 2
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Mork, Edwin C., Georgeville
Moses, Francis W., Tracy
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Mundwiler, Ralph E., Ortonville
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Nelson, Nels T., Litchfield, R. 6

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 Norris, Bernard, Alfred, St. Francis
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 O'Day, Richard S., Adrian
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 Olson, Andrew, Brainerd
 Olson, Eustis B., Ivanhoe
 Olson, H. Robert, Hankinson, N. D.
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 Peterson, Minnie M., R. 3., Sta. F., Minneapolis
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 Plowman, John W., Frazee
 Potter, Fern, Springfield
 Quam, Albert S., Evansville
 Quist, Walter P., Sta. F. R. 3, Minneapolis
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 Rathke, Herman F., Preston
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 Robbins, Arlin M., Buchanan, N. D.
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 Rohlik, Anthony, Seaforth
 Rorstrand, Eline M., Granite Falls
 Rose, Amanda, Kensington
 Rose, Sophia B., Kensington
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 Rosvold, Alfred L., Fergus Falls
 Roth, Rona, Brownsville
 Rowberg, Edwin S., Hanley Falls
 Russell, Mary C., Madelia, R. 5
 Rye, Esten, Minneota
 Samson, Arthur F., Motley
 Samuelson, Paul A., Lafayette
 Sandager, Karen, Tyler
 Sandager, Katherine E., Belview
 Sargent, Cecil C., Red Wing, R. 3, Box 4
 Sauck, Alfred F., Fairmont
 Schak, Ethel V., Hugo
 Schak, George B., Hugo
 Schillinger, Emma M., Minneapolis, Sta. F., R. 2
 Schrader, Edna C., Dundas
 Schrepel, Oliver H., Le Sueur
 Schroeder, John W., Grand Meadow
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 Seath, Sidney H., Freeborn
 Sheldon, Lynn, Spring Valley
 Shelgren, Herbert, Murdock
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 Smith, Frank, St. Cloud
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 Smith, Roy A., Parkers Prairie
 Smoke, Guy E., Stockton
 Soderholm, Axel O., Red Wing, R. 6
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 Starch, Edward J., West Concord
 Stebbing, Mabel, Como & Cottage Sts., St. Paul
 Stebbing, Sherwood, Como & Cottage Sts., St. Paul
 Storvick, Alert C., Albert Lea
 Strand, Harold J., Lakeville
 Swanson, George, Deronda, Wis.
 Swanson, Paul, Pennock
 Swenson, Einer J., St. Peter
 Synstebly, James R., Hanska
 Tande, Mathilda, St. James
 Taylor, Bernice A., Cleveland & Otto Sts., St. Paul
 Temple, Lyle E., Morristown
 Teutz, Olga, Princeton
 Tomhave, George A., Fergus Falls

Tovar, Augustine, Jr., Lima, Peru
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 Turner, Carl W., Bingham Lake
 Turner, Ellen I., Bingham Lake
 Tvedt, Chester G., Ada
 Utne, John A., Dalton
 Vail, Stanley L., Stewartville
 Vancura, Thomas, Lakefield
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 Veldy, Ella A., Hanley Falls

Venzke, Paul C., 1033 Churchill Ave., St. Paul
 Viker, Sevren P., Halstad
 VonLehe, Arthur R., Le Sueur
 Voxland, Laura C., Kenyon
 Walsh, Thomas J., Murdock
 Webb, Bernice M., Medford
 West, Jane, Turner, 1898 Selby Ave., St. Paul
 Wickland, Agnes M., Cambridge
 Wilcox, Florence T., 2122 Knapp St., St. Paul
 Willis, Clara E., 2415 Gerard Ave. S., Minneapolis
 Yampolsky, Abraham, 237 E. 68th St., New York, N. Y.

C CLASS—382

Aarness, Adolph M., Dalton
 Abrahamson, Anfred, Sunrise
 Abrahamson, Regina, Hanley Falls
 Achatz, Ruth I., Doon, Iowa
 Addison, Harry N., Lewiston
 Akin, Jerome E., Farmington
 Akin, Jesse D., Farmington
 Almquist, Bertha C., Red Wing, R. 2
 Amley, Martin O., Ellendale
 Amundgaard, Ivar, Argyle
 Amundsen, Tayah E., Strum, Wis., R. 2
 Anderson, Albert H., Maple Plain
 Anderson, Alfred, Dassel, R. 2
 Anderson, Arthur C., 2323 27th Ave. S., Minneapolis
 Anderson, Arthur H., Montevideo
 Anderson, David F., Red Wing
 Anderson, Edward O., Freer
 Anderson, Elmer H., Braham
 Anderson, Elvin W., Hills
 Anderson, Harry, Pine City
 Anderson, Henry O., Benson
 Anderson, Huldah H., Forest Lake
 Anderson, Karl W., 1306 9th St. S., Minneapolis
 Andrews, Cecile M., White Bear Lake, R. 2, Box 71
 Archibald, Edgar O., Deerwood
 Arine, Clayton W., Carver
 Armstrong, Helen K., Duluth
 Austin, Birdie A., 3653 5th Ave. S., Minneapolis
 Ayers, Edith M., Merriam Park, R. 3
 Bachmann, Frederick H., Lyndale & 50th St. S., Minneapolis
 Backus, Lucy L., 2556 Lyndale Ave. S., Minneapolis
 Bahls, Benjamin J., St. Paul Park
 Bahls, George H., St. Paul Park
 Bahls, Herbert H., St. Paul Park
 Baitinger, Edna M., Hutchinson
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 Beck, Bertha, Fessenden, N. D.
 Bell, Floyd A., Walnut Grove
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 Berling, Gustaf A., 521 Olive St., St. Paul
 Beyer, Mabel B., 1915 Selby Ave., St. Paul
 Blair, Millard F., Stockton
 Blexrud, Gotthard, Spring Grove
 Bloom, Mabel E., Chisago City
 Bolstad, Conrad, Dawson
 Bookless, Clarence E., St. Charles
 Boraas, Alvin M., Appleton
 Borene, Vera, Afton
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 Dalager, Cora, Glenwood
 Daly, John P., Rochester
 Davenport, Helen, Holloway
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 Dibble, Willard A., Cannon Falls
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 Ekelund, Ethel F., R. 2, Hopkins
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 Erlandson, Ruth A., Maynard
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 Falkenhagen, Walter M., Montevideo
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 Hansen, Anna B., Sauk Center
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 Hanson, Herman M., Murdock, R. 3
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 Harrison, Harold, LeRoy
 Hatfield, Wilbert M., Dundas
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 Hawkins, Wayne, 1887 Carroll St., St. Paul
 Hays, Myron E., Drummond, Md.
 Heckler, Alfred H., Woodstock, Ill.
 Hellie, Clifford G., Hills
 Hendrickson, Anton E., Lamberton
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 Hoverstein, Albert, Jewell, Iowa
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- Ingberg, William, Hendrum
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 Johnson, Anna M., Hawley
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 Larson, Anna T. S., Willmar, R. 1
 Larson, C. August, Amboy
 Larson, J. Alvin, Amboy
 Laughlin, Rector G., Fridley
 Lauve, Helen M., Hazel Run
 LeCount, Ray H., Villard, R. 1
 Lehmann, Ernestine W., Doyle
 Leitze, Herman, Stillwater, R. 4
 Lenander, Norme R., Buffalo Lake
 Lende, Corellan, H., Cottonwood
 Leyh, John H., Bertha
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 Montgomery, John, Austin, R. 4
 Montgomery, Lyell R., Weaver
 More, Floyd E., Blue Earth
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 Nelson, Selma L., Brookfield, R. 2
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 Norris, LeRoy P., Anoka, R. 1
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 Ohland, Edward J., Gibbon
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 Olson, Olive H., Gibbon
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 Peterson, Nellie C., Blooming Prairie
 Peterson, Palmer G., Ashby
 Peterson, Selma S., White Bear
 Peterson, Walter N., Shafer, R. 1
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 Polivka, Frederick J., Willow River
 Pond, George A., Shakopee
 Potter Julia V., Triumph
 Purmort, Louise, Cedar, R. 2
 Purmort, Reith, Cedar, R. 2
 Quinnell, Arnold L., Caledonia
 Rankin, Edwin S., Middle River
 Rankin, Robert, Badger
 Rice, Harry J., Afton
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 Robinson, Madge, L., Preston, Mont.
 Roble, Alma C., Caledonia
 Rood, Mabel, 1820 15th Ave. S., Minneapolis
 Rose, Edward A., Kensington
 Rotto, Joseph C., Farewell
 Rowe, Burton, Sauk Center
 Rude, Iver, Perley
 Rugg, Herbert A., Backus
 Russell, George B., Atwater, Box 163
 St. Martin, Charles E., Sta. F., R. 4, Minneapolis
 Sahlstrom, Janet E., 3125 Oakland Ave., Minneapolis
 Schacht, Ruby E., Merriam Park, R. 3
 Schaetzle, Odessa, 56 Orlin Ave. S. E., Minneapolis
 Schmidt, Alois H., Hugo
 Schroeder, Armin E., Grand Meadow
 Schryver, Erma M., 900 30th Ave. N., Minneapolis
 Searing, Genevieve F., 675 Portland Ave., St. Paul
 Sedlund, Ludwig E., Sunrise, Box 35
 Sefcik, Frank, Lonsdale, R. 1
 Shellum, Agnes E., Hanska, R. 3
 Short, Walter A., Granada
 Siemer, Anna D., Moose Lake
 Simms, Leigh A., 1085 14th Ave. S. E., Minneapolis
 Simpson, Charles W., 714 Monroe St. N. E., Minneapolis
 Sletta, Anna M., Madelia
 Smith, Alice M., Robbinsdale
 Smith, Eugene M., 619 13th Ave. S. E., Minneapolis
 Sogge, Tilda, Jackson
 Somerville, Noel F., Rochester, R. 5
 Sommers, Herbert C., Northfield
 Stauffer, Martha C., 2614 Lincoln St. N. E., Minneapolis
 Steen, Jennie W., Walnut Grove
 Stevenson, Sarah, Wasioja
 Strand, Francis A., Benson, R. 4
 Swanson, Carl O., Red Lake Falls
 Swennes, Olaf O., Minneota
 Swenson, Florence A., Kenyon
 Swenson, Frank E., Copas
 Synstebly, Alma E., Hanska
 Tande, Emil J., St. James
 Teisberg, Morten H., Ashby
 Thompson, Alice F., Badger
 Thor, Axel, L., Eagle Bend
 Thormodson, Clyda H., Hanska
 Thorpe, Evelyn B., 1015 McLean Ave., St. Paul
 Thronrud, Ida G., Dawson
 Townsend, Sylvia A., 2409 Taylor St. N. E., Minneapolis
 Trovatten, Otto O., Hanley Falls
 Turnacliffe, Beulah V., Waseca, R. 1
 Vanstrum, Hazel V., 325 8th St. S. E., Minneapolis
 Varnum, Harry J., South St. Paul
 Vassar, Mary G., 334 Rondo St., St. Paul
 Vessey, John W., Sta. F., R. 4, Minneapolis
 Vickers, Henry C., Detroit
 Viger, Ned, Dalton
 Viker, Cora, Halstad
 Vinicky, Frank P., Revere
 Viste, Louis B., Hills
 Wanquist, Walter W., Cologne
 Weidemann, Aurora, Belview
 Wells, Hazel M., Rush City
 Whitten, Priscilla N., Hayward, Wis.
 Wieland, Wesley H., Bertha
 Wiencke, Emma W., Amiret
 Willoughby, Ida Mae, 1429 6th St. S. E., Minneapolis
 Wilsie, Ethel H., Grand Meadow
 Winn, Helen M., Redwood Falls
 Winn, Herbert A., Redwood Falls
 Wunderlich, Harold A., 781 Portland Ave., St. Paul
 Zechlin, Leonard, 2829 Washington Ave. N., Minneapolis
 Zimmermann, Albert A., Le Sueur Center
 Zinschlag, Edward F., Lake Elmo
 Zuercher, Albert J., Excelsior

DAIRY SCHOOL—96

- Aalid, Thomas A., Emmons
 Akerson, Martin, Akerson
 Anderson, Henry, Milaca, R. 1, Box 80
 Anderson, Selmar, New Richland
 Anderson, Joseph F., Garfield
 Anderson, Peter L., Holt
 Anderson, Andrew J., Otisco
 Anderson, Sever, Forest City, Iowa
 Arlt, William, Glencoe
 Bohks, Henry J., St. Charles
 Barhaug, Otto G., Milaca, Box 432
 Blake, Peter F., Pierz, R. 1
 Bulkeley, F. L., Greene, Iowa
 Bjorge, Alvin O., Beldenville, Wis.
 Bartness, Arthur C., Hartland, R. 2
 Berg, Harvey G., Minneapolis
 Crum, Howard T., McKenzie, N. D.
 Cliffgard, Arnie, Sisseton, S. D.
 Carlson, Carl W., Rock Creek
 Christenson, Alfred, Albert Lea
 Clark, Benhard, Clear Lake
 Carlson, Jens P., Ellendale
 Erickson, Roy H., St. Peter
 Evans, Thomas, New London, R. 1
 Forsberg, Delphin A., Farewell
 Giles, C. J., Holland
 Goellong, L. J., Erhard
 Gross, Stephen J., Pierz
 Goltz, Adam, Gilman
 Hansen, Helmer P., Hartland
 Herrell, Dudley, Augusta, Wis.
 Hair, Leon B., Byron
 Hullstrand, Oscar B., Parkers Prairie
 Hanson, Clarence, Berner
 Hansen, John, Albert Lea, R. 2., Box 84
 Imsdahl, Harold, Brooten, R. 3
 Irely, George F., Erhard
 Johnson, Clarence L., Clayton, Wis., R. 2,
 Box 122
 Jones, William L., 203 W. 5th St., St. Paul
 Jensen, Hans J., Nelson
 Johnson, Clarence C., New Richland
 Johnsen, John, Evan
 Janning, Herman, Pierz
 Knutson, Abraham, Santiago
 Kristofferson, Hans, Brandon
 Kuhnley, Charley H., 322 Central Ave.,
 Minneapolis
 Livingston, Russell A., St. Peter
 Zierke, Charles O., Glencoe
 Lundgren, Harry, Gibbon
 Leiter, John, Holdingford
 Laudon, Albert G., Dover
 Luebke, John C., Waconia
 Lehmberg, Fred, J., Hutchinson
 Linander, Harry, Richardson, Wis.
 Leyfold, Ole M., Clarissa
 Lundberg, John, Brooks
 Molmen, Ole, Wadena
 Meyers, Mike, Owatonna
 Martinson, Oscar, Burtrum
 Mieseler, George, Cologne
 Moe, Edward, Barrett
 Markus, Frank, Wahpeton, N. D.
 Mischke, August, Thielman
 Nogel, William P., New Ulm
 Nelson, John G., Olivia
 Nelson, Carl A., Wood Lake
 Norberg, Andrew, Cokato
 Olson, Arthur R., Cokato
 Olson, Julius E., Rice Lake, Wis.
 Olson, Charles R., Ellendale
 Oman, Emil G., Little Falls
 Oman, Castrus, Atwater
 Peterson, Oscar C., St. Hilaire
 Peterson, Edwin, Hallock
 Peterson, George W., Chisago City, Box 86
 Peterson, Otto H., Chisago City
 Prange, Herman, Wells
 Reinke, Frank, New Salem, N. D.
 Rose, Oliver, Princeton
 Roberts, Jesse T., Annandale
 Rusley, Sever, Lake Mills, Iowa
 Stamnes, Oscar, Newfolden
 Skoglund, Gust, Eagle Bend
 Shaw, Samuel S., Princeton
 Schultz, Fred, Bertha
 Swanberg, Andrew J., Grantsburg, Wis.
 Stratton, George, Good Thunder
 Schlosser, Frank C., Carlos, Box 73 R. 2
 Stenberg, Hilmer L., Minneapolis, 2717 Penn.
 Ave. N.
 Vigen, John, Marietta
 Wass, Gunnar, Lancaster
 Willie, Frank, Battle Lake
 Wennberg, O. A., Clearbrook
 Wenzel, William C., Eitzen
 Wittnebel, Richard, Garfield
 Weis, Donald C., Pine Island

FARMERS' SHORT COURSE—127

- Ahlman, Gustave, Morristown
 Allickson, Allick, Montivedo
 Alsaker, Clarence, Benson
 Anderson, James A., 1221 W. 33rd St. Min-
 neapolis
 Anderson, William I., Belgrade
 Barnard, Charles D., 2532 Chicago Ave.,
 Minneapolis
 Beaven, Arthur H., 2435 Harriet Ave., Minne-
 apolis

- Boese, Arthur, Atwater
 Boland, Andrew, Elk Mound, Wis.
 Brown, John J., Madison Lake
 Burtman, Edward A., Lester Prairie
 Campbell, Dennis E., Winsted
 Cochrane, R. L., Little Falls
 Cochrane, Mrs. R. L., Little Falls
 Colbjorson, Henry, Rushford, R. 3
 Cole, Mrs. Janet M., Fort Pierre, S. D.
 Crawford, Charles A., 2409 5th Ave. S., Minneapolis
 Dahlman, Eben D., Grandy
 Davis, Isaac, Amiret
 DeLong, Scott H., 1139 Johnson St. N. E., Minneapolis
 Derby, George E., 820 9th Ave. S. E., Minneapolis
 Duncanson, Charles L., Stewartville
 Enander, Paul, Pennock
 Engelman, Herman, Correll
 Erickson, Erick, B., Pelican Rapids
 Fabian, Arthur E., Campbell
 Filskov, Peter N., Roseau
 Fois, Robert S., St. Bonifacius
 Gallagher, George, Waseca
 Gammalson, Matthew, Battle Lake
 Gerhardt, Harvey N., Odessa
 Gongoll, Clarence A., Mayer
 Gruenhagen, Henry Jr., Glencoe
 Gudmundson, Julius, Ivanhoe
 Haag, Charles Jr., Eden Valley
 Hanson, Chester, Dalton
 Hatledal, Richard, Benson
 Hecht, Charles, Alpha
 Hicks, Tracy M., Tracy
 Highmark, Joseph, Proctor, Box 66
 Hoefler, Alfred, Gibbon
 Hoehm, Fred, Princeton
 Ilstrup, Leif T., Wright
 Ingalls, Boyd, Newport
 Jansen, John Jr., Milbank, S. D.
 Johnson, Alvin, New York Mills
 Johnson, Arthur A., Carver
 Johnson, David E., Madison Lake
 Johnson, Francis, Carver
 Johnson, Harry L. L., 2715 Lyndale Ave. N. Minneapolis
 Johnson, Joseph, Fridley
 Jurisch, Reynolds G., Hastings
 Kaemmer, Bert, Albert Lea
 Kajer, Stanley, New Prague
 Kohls, Charles, Rosemount
 Kramer, Edward, Gibbon
 Krampe, Elmer, Clinton
 Kranz, Henry C., Nicollet
 Langan, Matthew, Danvers
 Larson, Simon, Pipestone
 Leedstrom, Edward A., Hastings
 Lilienthal, Ferdinand, Glencoe
 Lockerby, Mrs. W. E., 510 12th Ave. S. E., Minneapolis
 Loftness, Gregor, Hector
 Long, Charles, L. 1929 Kenwood Parkway, Minneapolis
 Longfellow, Albert R., Little Falls
 Lourmen, Lothard, Maddock, N. D.
 Low, Charles, Crookston
 McConnell, Mrs. Cora, Griswold, Iowa
 McDuffee, Herbert, 2540 3rd Ave. S., Minneapolis
 McNeill, Walter D., Delavan
 Maher, William, South St. Paul
 Melligan, Edwin, Walnut Grove
 Melligan, John, Walnut Grove
 Miller, Joseph, Center City
 Mitchell, Moses, Ruthton
 Molkenbur, Arthur, Inver Grove
 Nelson, Robert, Tracy
 Nelson, Victor C., Grove City, R. 3
 Neutson, Earl, 3037 S. Fremont Ave., Minneapolis
 Olsen, Hulbert, 551 Westminster St., St. Paul
 Olson, John N., Walnut Grove
 Olson, Oscar, Tracy
 Olson, Simon, Waterville
 Pagenkopf, Anton, Mapleton
 Peterson, Alfred, Erhards
 Peterson, Henry, Ruthton
 Peterson, Knute, Osseo, R. 6
 Randall, John R., 116 Oak Grove St., Minneapolis
 Ranney, Harold F., Benson
 Rasmussen, Christian, Garland
 Reese, John, Clarkfield
 Reimhardt, Arthur, Waseca
 Reimhardt, Elmer, Waseca
 Reins, Walter, Ruthton
 Roberts, James R., 3309 Harriet Ave., Minneapolis
 Robinson, C. W., 1644 Capitol Ave., St. Paul
 Rollins, J. F., 1002 Como Ave. S. E., Minneapolis
 Rossa, Frank, Roberts, Wis.
 Ruble, Albert, Albert Lea
 Ruebke, Benjamin A., Ada
 Schoeppler, Harvey F., New Germany
 Schreiber, Bert, 1429 Marshall St. N. E., Minneapolis
 Smith, Peter, Jr., Ferris
 Smith, Randall W., 2447 Colfax Ave. S., Minneapolis
 Smith, Mrs. R. W., 2447 Colfax Ave. S., Minneapolis
 Stake, David M., Grandy
 Stake, Philip, Grandy
 Stendal, Astor M., Brainerd
 Stendal, Rudolph A., Brainerd
 Sterritt, Mrs. J. F., 1514 Freemont Ave. N. Minneapolis

Stockman, Edward, Plato	Tomhave, John C., Fergus Falls
Stolpestad, Oscar, Fosston	Trafton, Gilbert H., Mankato
Strandness, George, Glenwood	Truedson, Albert, Walnut Grove
Streich, Robert E. C., Howard Lake	Waller, Francis, Stacy
Tanton, Alfred R., Champlin	Weigelt, Paul, Mapleton
Thelen, Harry A., Cold Springs	West, Hal R., Blakeley
Thompson, Edwin H., Wayzata	Westberg, Leonard, Warren
Tighe, Laurence G., 314 Dayton Ave., St. Paul	Wenz, Frank, Osseo

JUNIOR SHORT COURSE—310

Abrahamson, Olaf C., Princeton	Dahners, Mary, Merriam Park, R. 3
Alland, Emma, Waseca	Davis, Laurel, Elk River
Alland, Esther, Waseca	Day, John M. V., Jr., Lake Elmo
Almquist, Aurora E., Chisago City	Derby, Walter C., Mantorville
Altenweg, Clement, Anoka	Des Lauriers, Earl, Merriam Park
Altnow, Gustaf W. H., Arlington	Dobberstein, Henry F., Buffalo Lake
Anderson, Carl A., Hutchinson	Donlin, Marcella, Excelsior
Anderson, Floyd V., Hutchinson	Dorsey, Edward, Pillager
Anderson, Harold F., Hutchinson	Doyle, Joseph, Rosemount
Anderson, Wilhelm, Red Wing, R. 6	Doyle, Rose L., Goodhue
Angstman, Forrest, Zimmerman	Dunn, Hollis, Long Lake
Ayers, Charles, Merriam Park, R. 3, Box 88	Dunn, Morey, Long Lake
Ayers, Frank, Merriam Park, R. 3, Box 88	Eastman, Ambrose A. C., Merriam Park
Ayers, Myrtle, Merriam Park, R. 3, Box 88	Eastman, Josephine A., Merriam Park
Bagley, Blanche, Blooming Prairie	Eastman, May B., Merriam Park
Bagley, Maude, Blooming Prairie	Effertz, Fred, Norwood
Bailey, A. C., Elk River	Einum, Clara, White Bear
Bartling, Emma, Brainerd	Ekman, Gertrude, New Brighton, R. 2
Baker, Fay, Excelsior	Elsner, Erich, Princeton
Berglund, Adele, Maple Plain, R. 2	Emery, Emmett, Champlin
Berglund, Astrid, Belle Plaine	Engbretson, Anna, Waseca
Beck, William E., Brownsdale	Engelen, Jerry H., Cologne
Biersdorf, Oscar, St. Bonifacius	Engstrom, Edward, Elk River
Biery, Lonnie, Mantorville	Enright, Winnifred, Rose Creek
Blair, John E., Princeton	Erickson, Myrtle D., Goodhue
Blair, Vernon L., Princeton	Erickson, Viola J., Excelsior
Block, Myrtle, Mayer	Evans, Willis, Osseo
Bohlman, John, Hamberg	Fabel, Margaret, Norwood
Bowman, Claude, Merriam Park	Fanslow, Elmer, Red Wing
Boyle, James, Gaylord	Farnham, Harold L., Brickton
Briggs, Maude J., 1502 Summit Ave., Minneapolis	Felker, Marguerite J., Excelsior
Brooks, Kendrick, Eureka	Fiegel, Elmer F., Kasson
Brown, Chester, Osseo	Field, Danforth, 1532 Spruce Place, Minneapolis
Brown, Helen, Osseo	Fischer, Charles, Gladstone
Buchanan, Rollin E., Excelsior	Flom, Alfred P., Dennison
Butterfield, Gertrude, Long Lake	Flom, Clarence, Dennison
Carlin, Ella, St. Cloud	Fowler, Clara V., Osseo
Carlson, Carl, Taylors Falls	Froemming, Alfred, Hutchinson
Carlson, Elvira, Mille Lacs	Gantzer, Wilfred, Merriam Park, R. 3, Box 80
Carlson, Emil T., Mille Lacs	Geppert, Elmer C., Millville
Carlson, M. Frances, Chisago City	Gilbert, Clara, Lake City
Carroll, Harold J., Brownsdale	Gilbert, Silas C., Lake City
Chalfant, Shirley, Waltham	Grams, Alice R., Hutchinson
Chambers, Ernest, Big Lake, R. 1	Greenberg, Earl N., Hutchinson
Christensen, Victor, St. Francis	Grems, Vicella, Dodge Center
Christgan, Anetta M., Dexter	Grimm, John O., Waconia
Conroy, Helen, Anoka	Grow, Lawrence H., Princeton
Cox, Michael C., Kellogg, R. 2	Grow, Neil P., Princeton

- Gulby, Ernest A., Zimmerman
 Hall, Ethel, Hutchinson
 Halvorson, Oscar, Georgeville
 Hamilton, Laura M., Lake Elmo
 Hansen, Henius R., Hutchinson
 Hanson, Harry, Santiago
 Hanson, Nettie C., Dennison
 Harrison, James L., Excelsior
 Hartlieb, Edward, Merriam Park, Box 61, R. 3
 Hasselquist, Harry, Sunrise
 Hauck, Ernest, Lake Elmo
 Haugen, Irwin B., Goodhue
 Hawlik, Henry I. W., Silver Lake
 Heath, Harold E., Janesville
 Heinbocker, Charles C., Norwood
 Hinrichs, Arnold F. J., Red Wing
 Hill, Harland, Elk River
 Hoeffken, Fred, Waconia
 Hoes, Arthur, Mayer
 Hofflander, Gunnar, Princeton
 Hoffman, Henry, White Bear
 Hogan, Elizabeth, Merriam Park, R. 3
 Hogan, Thomas J., Jr., Merriam Park, R. 3
 Holbrook, Howard A., Brownsdale
 Holm, Edwin, Sunrise
 Hurtt, Louise, Zimmerman
 Ickler, Elva, North St. Paul
 Iliff, Lyle, Zimmerman
 Iliff, Myrtle, Zimmerman
 Jacobson, Andrew, Lyle
 Jackson, Alma G., Waseca
 Jaenicke, Herbert Ed., Princeton
 Johnson, Alfred J., Hutchinson, Box 176
 Johnson, Ole, Princeton
 Jones, Murray, Mazeppa
 Janguist Marie, Maple Plain, R. 3
 Jorgensen, Sophia, Ormsby
 Kennedy, Charles D., Zumbro Falls
 Kenyon, Marion G., Osseo
 Kern, Elizabeth, Brainerd
 Klein, Ernest, Kellogg
 Klein, Ralph M., Kellogg
 Kloth, Adelaide, Norwood
 Knutson, Martha, Hutchinson
 Kohler, Clement, Norwood
 Kunde, Edward, Goodhue
 Kusske, Clara, Mayer
 Laurence, A. F., Norwood
 Lamb, Chester, Mazeppa
 Lamb, Gertrude, Mazeppa
 Lamport, Leonard, Brownsdale
 Lally, Marie, Cannon Falls
 Lapham, Grant, Caledonia
 Larson, Annie, Brainerd, R. 2
 Larson, Emily, 3121 17th Ave. S., Minneapolis
 Larson, Frederick, Brainerd, R. 2
 Leng, Leo, Truman
 Leng, Selma, Truman
 Levik, Ella, Truman
 Lilleskov, Oscar, Stanton
 Lindert, Herbert, Norwood
 Lindstrom, John, Lindstrom
 Linehan, Tressa, Waseca
 Livingston, George A., Excelsior
 Loudon, William, Excelsior
 Loven, Elizabeth, Cannon Falls
 Loven, Minnie S., Cannon Falls
 Ludvigson, Theodore, Truman
 Lundberg, Floyd R., Maple Plain
 Lynch, Leander, Alma City
 McClymont, Ruth, Excelsior
 McFarlane, Gordon, Alma City
 McPadden, William M., Waconia
 Madden, Genevieve, Waseca
 Madden, Sylvester, Waseca
 Maughan, Harriet F., Excelsior
 Manuel, Hale, 1731 Marshall Ave., St. Paul
 Mau, George, Truman
 Mayer, Katherine I., Merriam Park
 Mayer, Thomas E., Merriam Park
 Metelak, Katherine E., Brownston
 Metelak, Martha J., Stewart
 Meyer, Clarence, Goodhue
 Meyer, Hazel C., Lake Elmo
 Meyer, Lorena, Goodhue
 Meyer, Serena, Lake City
 Meyer, Serenus, Lake City
 Mielke, Robert, Young America
 Miller, Harry, Osseo
 Miller, Selma, Osseo
 Moline, Ruth, Excelsior
 Murray, Russell, Brainerd
 Neller-moe, Platt M., Buffalo Lake
 Nelson, Earl E., Hayfield
 Nelson, Louis, Brainerd
 Nielsen, Lenora, Merriam Park
 Nielsen, Leonard, Merriam Park, R. 3, Box 116
 Nystrom, Elvira, Big Lake
 Nystrom, Harry W., Big Lake
 Odegard, Odin, Santiago
 Odland, Paul, Lake Elmo
 Oestreich, Christ, Hutchinson
 Olmstead, Eugene, Excelsior
 Olson, Edward A., Maple Plain
 Olson, Sidney M., Hutchinson
 O'Reilly, Agnes, Goodhue
 O'Reilly, Eleanor, Goodhue
 Oswald, Theodore J., Osseo, R. 4
 Otterness, Arthur H., Dennison
 Pagel, Fred, Buffalo Lake
 Palmer, James, Excelsior
 Patten, Edith, Long Lake
 Peterson, August, Chisago City
 Peterson, Bertha, Hutchinson
 Peterson, Carl A., Anoka
 Peterson, Eli, Truman
 Peterson, Harry, Clear Lake
 Petrick, Henry, Appleton

- Phillips, William, Lake City, R. 3
 Plein, Elvin P., Smithfield
 Plein, Ralph J., Plainview
 Podlasek, Mary, New Brighton
 Poole, Gladys, Truman
 Poole, Lois, Truman
 Poole, William, Truman
 Powers, Ethel, Excelsior
 Raether, Frank, St. Bonifacius
 Rank, Olive M., Lansing
 Rasmussen, Esther M., Merriam Park
 Reilly, William, Goodhue
 Reimringer, Joseph, Merriam Park, R. 3,
 Box 87
 Reinking, Louis W., Osseo, R. 4
 Rietman, Benjamin, Red Wing
 Riley, Edward J., Goodhue
 Roberts, Amy R., Osseo
 Roberts, Leon, Osseo
 Robideau, Ralph F., Princeton
 Robideau, Real, Princeton
 Rocheford, Albert L., Princeton
 Ronningen, Mabel G., Wanamingo
 Rose, Delbert, New Brighton
 Rose, Nettie, Excelsior
 Rosenwald, Oswald, Norwood
 Ross, Helen, Maple Plain, R. 3
 Saussele, Leslie R., Osseo
 Schacht, Mabel O. G., Merriam Park
 Schacht, Raymond, Merriam Park, R. 3,
 Box 91
 Schafer, Elmer L., Lake City
 Scharber, Otto J., Rogers
 Scheel, Edward A. H., Stillwater
 Schennemann, Minnie, White Bear
 Schiltgen, Clara, North St. Paul
 Schimmelpennig, Bruno, Norwood
 Schlasner, Clarence C., Mazeppa
 Schlegel, Gustav C., Osseo
 Schmidt, Edwin V., Buffalo Lake
 Scholer, Robert A., Zumbro Falls
 Sellman, Hjalmer, Sunrise
 Sidnam, Vernon F., Long Lake
 Siefert, Edward, Mazeppa
 Sjostedt, Meldon, 715 2nd Ave. S. E., Minne-
 apolis
 Sjostedt, Ruiz, 715 2nd Ave. S. E., Minne-
 apolis
 Slawson, Raymond A., Kellogg
 Smart, Lillie, Zimmerman
 Smith, Robert, Norwood
 Smith, Ruth, Excelsior
 Sobeslavsky, Mary, Hutchinson
 Spilker, Fred, Anoka
 Steele, Myrtle A. L., Merriam Park
 Stoddart, Harold, North St. Paul, R. 1
 Stoddart, Hugh, North St. Paul, R. 1
 Steller, Carl, Excelsior
 Steller, Roy, Excelsior
 Sund, Archie, Elk River
 Sundeen, Joseph, St. Francis
 Sundeen, Paul E., St. Francis
 Swan, Florence, Stewart
 Swanson, Edwin, Anoka
 Swanson, Ray L., Becker
 Teig, Julia, Truman
 Thede, Hattie, Claremont
 Thomas, Martha E., 943 Forest St., St. Paul
 Thompson, Selmer E., Lansing
 Torkelson, Inger O., Excelsior
 Trumble, Julius G., Excelsior
 Trunk, William A., Princeton
 Truwe, Clarence W., Waconia
 Truwe, George, Young America
 Truwe, Laura, Hamberg
 Tryon, Elizabeth, G., 2115 Gerard Ave. S.,
 Minneapolis
 Uglen, Oscar, Princeton
 Urback, Kate, Excelsior
 Valker, Raymond, Hutchinson, R. 3
 Vangen, Iver, Cannon Falls
 Vogler, Fred, Young America
 Wanous, Reuben, Silver Lake
 Warnberg, Selma D., Rush City
 Warrington, Ralph A., Austin
 Wehking, George, Buffalo Lake
 Weise, Ezra, Matawan
 Weise, Wesley, Matawan
 Welch, Blanche, Hutchinson
 Welch, Tressa, Hutchinson
 White, Emery M., Maple Plain
 Wienholz, Alfreda M., Excelsior
 Wilson, Murray M., Excelsior
 Wituski, Frank, Silver Lake
 Wold, Alma S., Blooming Prairie
 Wright, George, Mazeppa
 Zipf, Frederick G., Hutchinson
 Zuercher, Ruth, Excelsior
 Zumach, Earl, Hutchinson
 Zumberge, Edwin F., Norwood
 Zumberge, Herbert, Norwood

TRACTION ENGINEERS—38

- Ahlberg, John H., Sebeka
 Anderson, Arthur W., Dassel
 Anderson, Vernon, Vesta
 Benson, Arthur G., 1054 W. Central, St. Paul
 Buhler, Ernest O., St. Anthony Park
 Coughlan, Richard J., Austin
 Decker, Leonard R., 305 Water St., Austin
 Falconer, George B., 813 Oak St., Brainerd

- | | |
|--|--|
| Felling, Alfred A., Browns Valley | Olesen, Nels S., Luck, Wis. |
| Folsom, Edgar P., 401 7th St. S. E., Minneapolis | Olson, Ole K., Benson |
| Gaumnitz, Fred, 1031 16th Ave. S. E., Minneapolis | Patterson, Clarence D., Cloquet |
| Halverson, Alfred M., Marengo, Iowa | Paulson, Paul A., 3409 Pillsbury Ave., Minneapolis |
| Hample, Paul G., Oakes, N. D. | Pearson, Perry, Monterey |
| Hardie, Robert A., Vesta | Russell, James H., Waterville, Iowa |
| Kjeldergaard, Erick O., Fairfax | Stephenson, John E., 2724 Oakland Ave., Minneapolis |
| Krause, William C., Summit, S. D. | Strand, Oscar W., Benson |
| Kunze, George, Sleepy Eye | Sutter, Charles J., Wadena |
| Lafky, Walter H., Wilson | Tomandel, James J., Stangelville, Wis. |
| Lang, Harvey A., Lake City | Trano, George H., Zumbrota, R. 5 |
| Leversee, John U., 1057 13th Ave. S. E., Minneapolis | Tuttle, Robert H., 4650 Fremont Ave. S., Minneapolis |
| Mahlum, Bert A., Brainerd | Werner, John, Long Prairie |
| Matson, Emil, Willmar | Westbloom, Andrew Jr., Olivia |
| Nelson, Harry W., Hector | Wold, Ole P., Fessenden, N. D. |





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